NEW

ALL ABOUT HISTORY
Book of the

VICTORIANS

EXPLORE A CELEBRATED ERA THROUGH THE LIVES OF AN ICONIC MONARCH & HER SUBJECTS

QUEEN VICTORIA ◆ AGE OF INDUSTRY ◆ WORKING LIFE ◆ RISE OF AN EMPIRE

Welcome to

ALL ABOUT HISTORY
Book of the
VICTORIANS
1837-1901

During the course of Queen Victoria's reign, Britain underwent such a remarkable period of upheaval that the nation's influence extended to the furthest reaches of the globe. With the advances of the Industrial Revolution, trade and production boomed, lending momentum to an expanding dominion. On her deathbed in 1901, Victoria could reflect on an empire on which the sun never set. At the height of the imperial century, a quarter of the world's surface looked to her as their leader, not least the workforce toiling in her factories and shipyards. From the living conditions of Victoria's poor to the careers of influential figures, from the personal life of a steely monarch to the advent of the Metropolitan Police, Book of the Victorians will transport you to 19th-Century Britain. Explore the era through vivid articles, imagery and illustrations, and understand how such a small island garnered the might to dominate the world.

VICTORIANS

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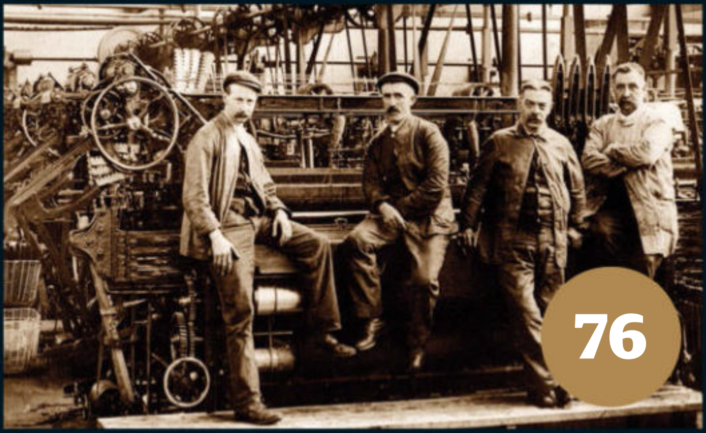

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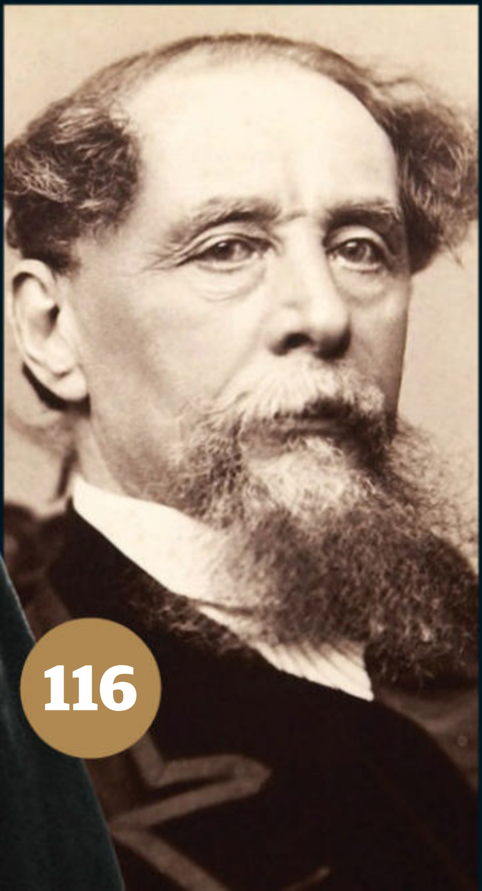

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1837-1901

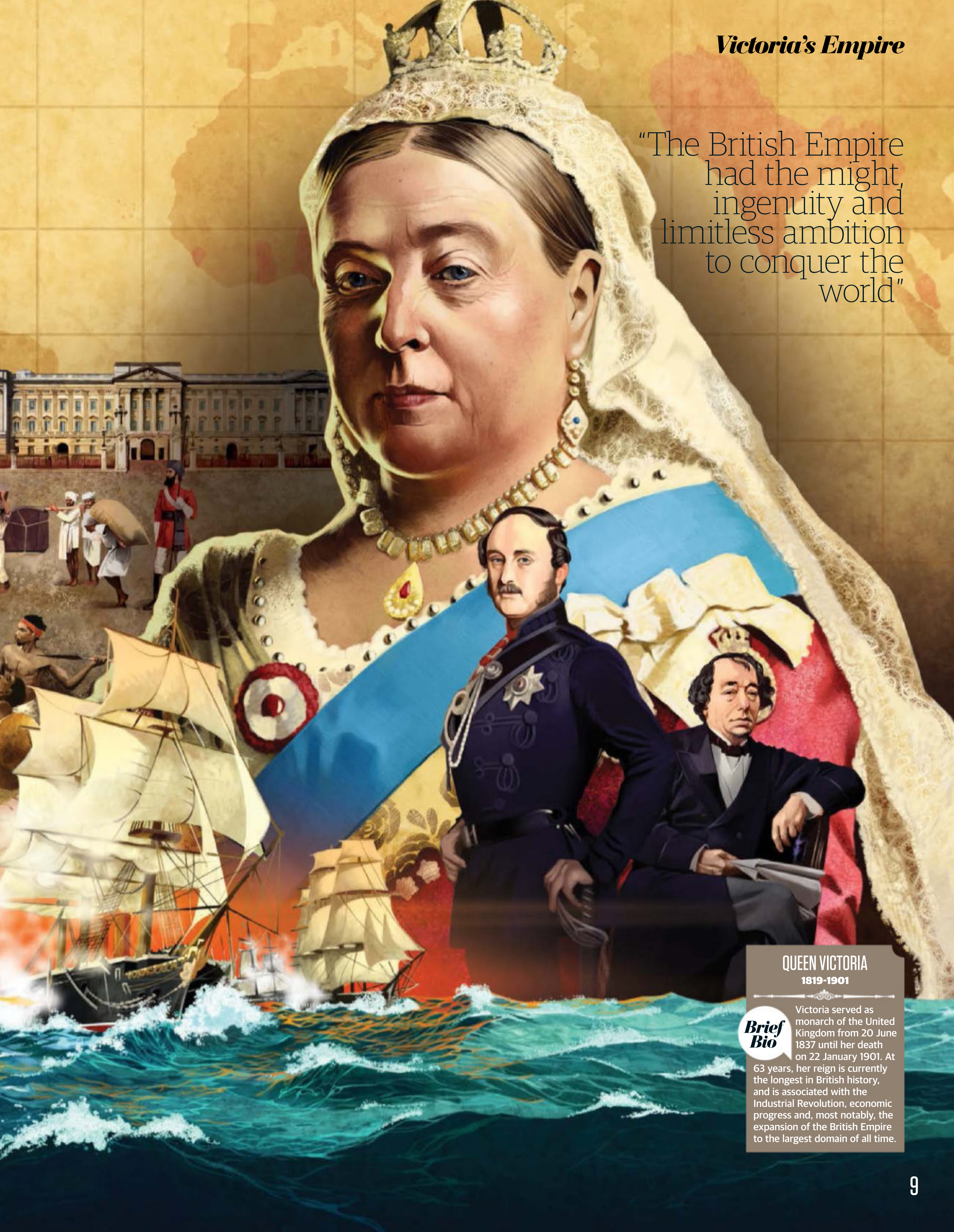
Victoria's Empire

How a tiny island and its queen came to possess an empire so large that the sun never set on it

The date was 22 January 1901 and the British Empire was the largest of any in human history, but the monarch who reigned over it would not live another day. As Queen Victoria lay dying in Osborne House on the Isle of Wight she looked back on a reign that spanned over 63 years. She had seen her empire grow from a collection of scattered isles, separated by vast plains of lands and insurmountable oceans, to the greatest the world had known. It had reached over India, plucked its riches and mounted the nation as the glimmering jewel in Victoria's crown. It had butchered its way mercilessly across Africa at the cost of thousands of British corpses and countless natives who had tried in vain to stand in its way. It was powered forward both by Christian values and colonial greed. So, as Victoria drew her last breath, she left a world forever transformed by the empire she had built.

When a young Princess Victoria ascended the steps of Westminster Abbey on her coronation day, few could have foreseen the mighty empire she would eventually rule over. The British public were increasingly disenchanted with the monarchy; her grandfather, the mad king George III, had failed to protect British interests in the Americas, and her uncle George IV's terrible relations with his wife and reckless spending had tarnished the monarchy's prestige. At a mere 18 years and barely 150 centimetres (five feet) tall, Victoria hardly seemed a fitting patron for the vast ambitions of British expansion that started in the 17th Century. But this blue-eyed, silvery-voiced lady possessed a stubborn will of iron and her reign would become the longest in British history. Her ascension marked not the death of the British Empire, but the new dawn of a kingdom so massive that none could ever hope to challenge it.

The world was changing as Victoria took her place on the throne. The tiny, scattered rural villages of England were being abandoned en masse and the cities were transforming into sprawling metropolises. Great towering concrete chimneys rose from the ground and the whirr of



"The British Empire had the might, ingenuity and limitless ambition to conquer the world"

QUEEN VICTORIA

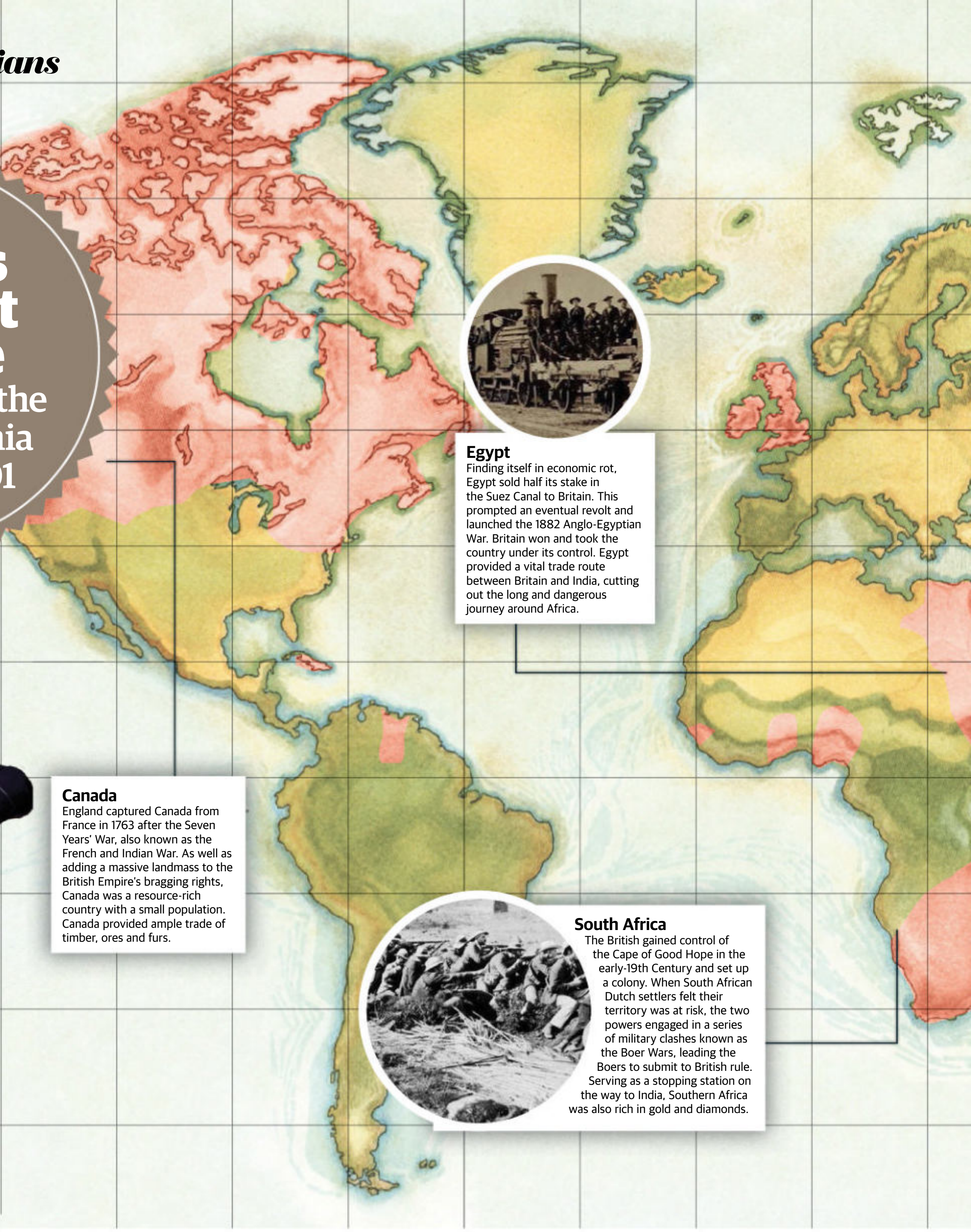
1819-1901

Brief Bio

Victoria served as monarch of the United Kingdom from 20 June 1837 until her death on 22 January 1901. At 63 years, her reign is currently the longest in British history, and is associated with the Industrial Revolution, economic progress and, most notably, the expansion of the British Empire to the largest domain of all time.

The World's Greatest Empire

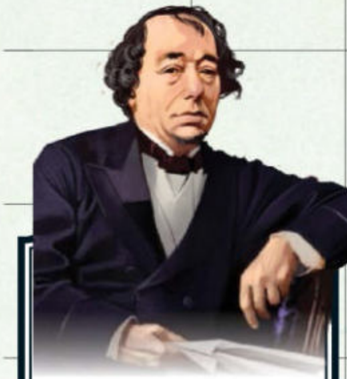
How much of the world Britannia ruled by 1901



Egypt
Finding itself in economic rot, Egypt sold half its stake in the Suez Canal to Britain. This prompted an eventual revolt and launched the 1882 Anglo-Egyptian War. Britain won and took the country under its control. Egypt provided a vital trade route between Britain and India, cutting out the long and dangerous journey around Africa.

Canada
England captured Canada from France in 1763 after the Seven Years' War, also known as the French and Indian War. As well as adding a massive landmass to the British Empire's bragging rights, Canada was a resource-rich country with a small population. Canada provided ample trade of timber, ores and furs.

South Africa
The British gained control of the Cape of Good Hope in the early-19th Century and set up a colony. When South African Dutch settlers felt their territory was at risk, the two powers engaged in a series of military clashes known as the Boer Wars, leading the Boers to submit to British rule. Serving as a stopping station on the way to India, Southern Africa was also rich in gold and diamonds.



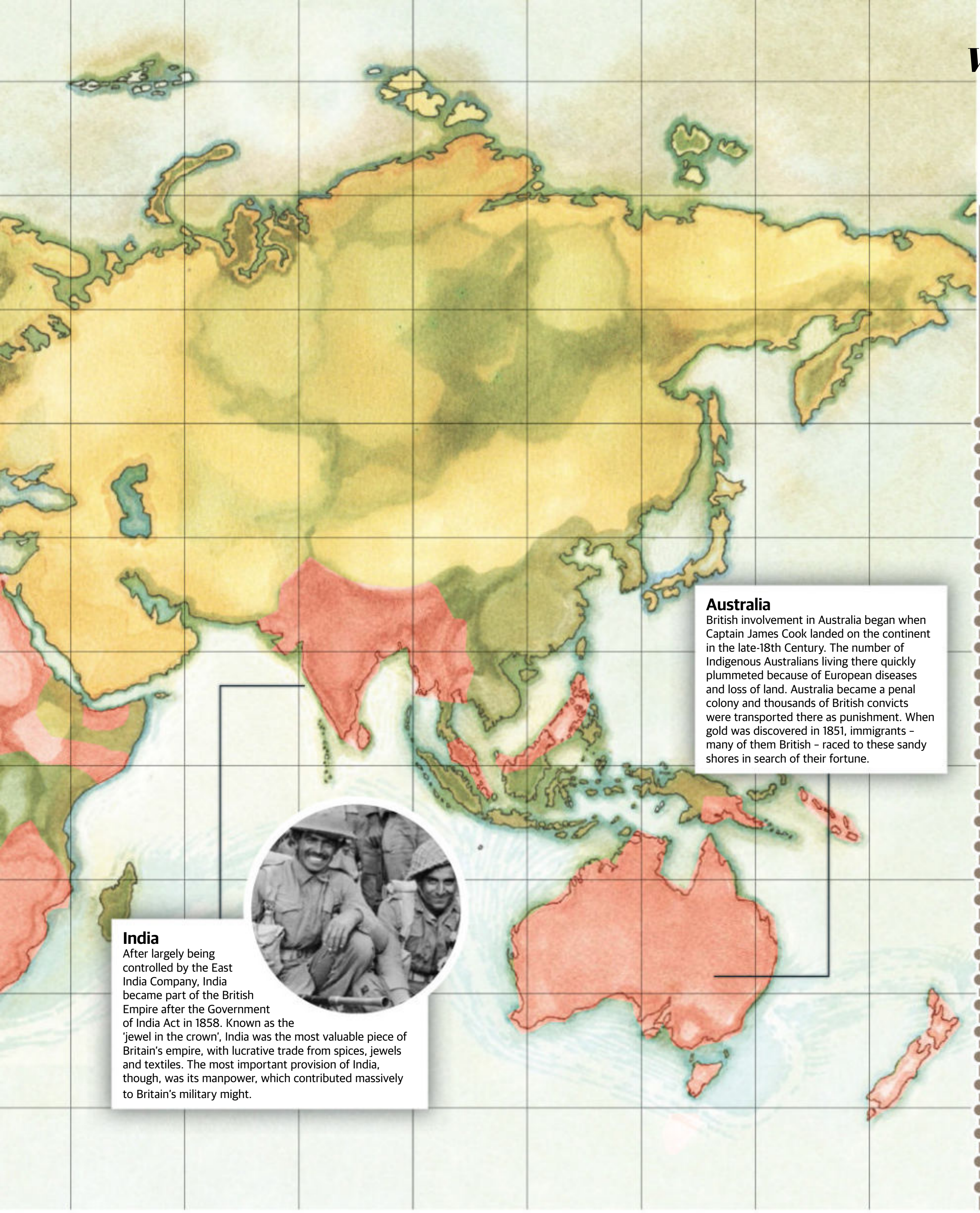
5 things you probably didn't know about Benjamin Disraeli

1. Born to Italian-Jewish parents, Disraeli was the first British prime minister with a Jewish heritage, though he was baptised as a Christian.
2. Disraeli pursued many early business ventures that failed, leaving him in crippling debt, leading to a nervous breakdown from which it took him years to recover.
3. He was mocked in Parliament when he made his maiden speech. Later he proclaimed, "the time will come when you will hear me."
4. Disraeli was a notorious flatterer and when asked by a colleague how to deal with Queen Victoria, he replied: "First of all, remember she is a woman."
5. He introduced much legislation that benefited the poor, such as the 1877 Artisans Dwelling Act, which provided housing, as well as the Public Health Act the same year.

> "The loss of the love of her life changed not only herself as a person, but the fate of her empire"

machines sounded across the country - the age of steam had arrived. The Industrial Revolution changed Britain from a quaint maritime nation on the edge of Europe to a manufacturing colossus. Railways and steamships brought the British overseas territory closer to their mother country, opening up opportunities for trade and commerce that had previously been unfathomable.

It was Albert, Victoria's beloved husband, who opened her and Britain's eyes to the ideas that went on to shape her empire. Fascinated by mechanisms and inventions, Albert organised The Great Exhibition at the Crystal Palace - a temple to the ingenuity of the rapidly developing modern world. Inventions from around the world were displayed, but this was Britain's show, first and foremost. The



Australia
British involvement in Australia began when Captain James Cook landed on the continent in the late-18th Century. The number of Indigenous Australians living there quickly plummeted because of European diseases and loss of land. Australia became a penal colony and thousands of British convicts were transported there as punishment. When gold was discovered in 1851, immigrants – many of them British – raced to these sandy shores in search of their fortune.

India
After largely being controlled by the East India Company, India became part of the British Empire after the Government of India Act in 1858. Known as the 'jewel in the crown', India was the most valuable piece of Britain's empire, with lucrative trade from spices, jewels and textiles. The most important provision of India, though, was its manpower, which contributed massively to Britain's military might.

Timeline Of Conquest

How Victoria's British Empire became the world's biggest

1838 PICAIRN ISLANDS
1842 HONG KONG
1848 INDIA
1853 TRUCIAL OMAN (TRINIDAD & TOBAGO)
1857 ADEN (YEMEN)
1862 BRITISH HONDURAS (BELIZE)
1868 BECHUANANLAND (BOTSWANA)
1874 FIJI
1878 CYPRUS
1878 SOUTH WEST AFRICA (NAMIBIA)
1881 NORTH BORNEO (SABAH)
1884 BASUTOLAND (LESOTHO)
1884 BRITISH SOMALILAND (SOMALILAND)
1884 PAPUA NEW GUINEA
1885 NIGERIA
1885 KENYA
1887 MALDIVE ISLANDS
1888 BRITISH EAST AFRICA (KENYA)
1888 BRUNEI
1888 COOK ISLANDS (NZ ASSOC)
1888 GAMBIA
1888 SARAWAK (MALAYSIA)
1889 RHODESIA (ZIMBABWE)
1889 TRINIDAD (TRINIDAD & TOBAGO)
1890 TANGANYIKA (TANZANIA)
1891 MALAWI
1894 UGANDA
1898 SUDAN
1899 KUWAIT

symbols of British might, which occupied half of the entire display space, served as clear examples of what the British Empire was capable of, and fostered ideas of national supremacy in Victoria, the government and the majority of the British population. The Great Exhibition proved that, far from the crumbling remains of a once-powerful nation, the British Empire had the might, ingenuity and limitless ambition to conquer the world.

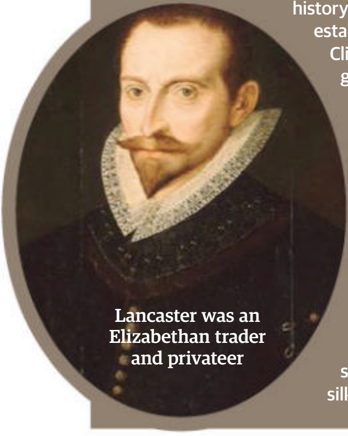
The opportunity to pave the way for this empire arose in 1857 with the Indian Mutiny. India had been ruled by a private entity – the East India Company – since 1757. The rebellion manifested the discontent felt by the Indian people for the blatant disrespect of their beliefs and customs. The company showed disregard for the Indian caste system and issued new cartridges greased with cow and pig fat that had to be opened with the mouth, which was highly offensive to Muslim and Hindu soldiers. These actions opened the eyes of the Indian people to the daily injustice they were being subjected to, and unrest snowballed into mass riots and an uprising. Although the mutiny was eventually quelled, the rebellion led to the dissolution of the company, the passing of power to the British state and the creation of the British Indian Empire.

Queen Victoria welcomed the country to her empire in a lavish ceremony, promising that Indian native customs and religions would be respected and that she would "draw a veil over the sad and bloody past." She presented herself as a maternal figure and a crusader for peace, justice and honest government – ideals largely inspired by her husband. Albert had instilled in her mind the vision of King Arthur's Camelot, an empire ruled not by tyranny but by justice, where the strong serve the weak, where good triumphs over evil, bringing not oppression and bloodshed, but trade, education and welfare. His influence on Victoria was immense and when, on 14 December 1861, he died of suspected typhoid fever, the Empire veered into an entirely new direction.

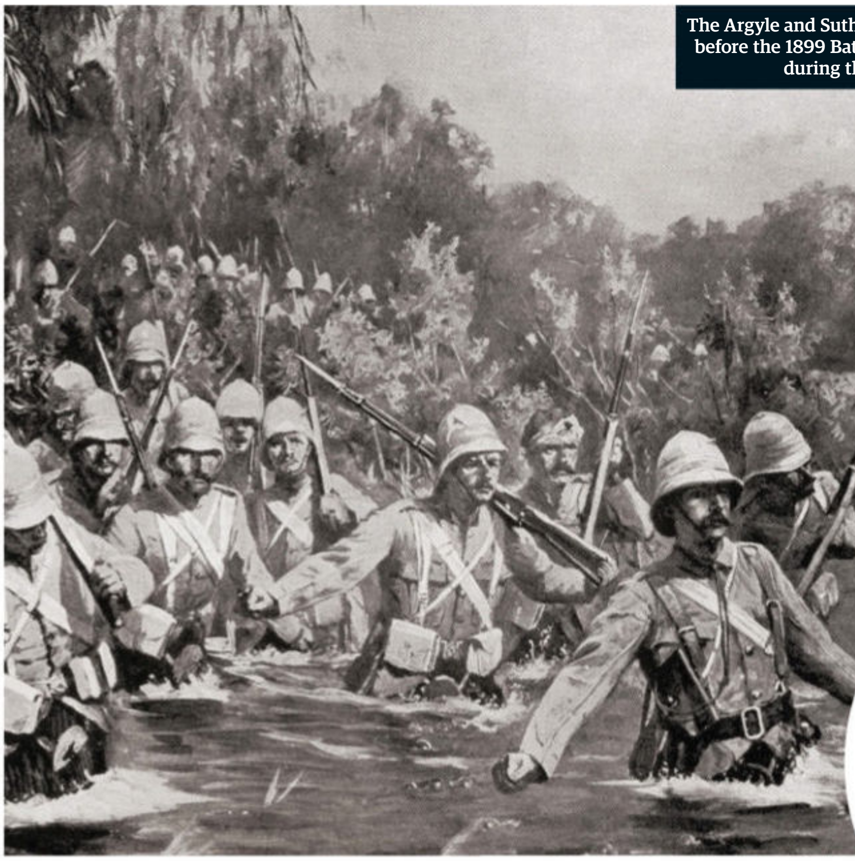
When Albert drew his last breath in the blue room at Windsor Castle the queen was

What was the East India Company?

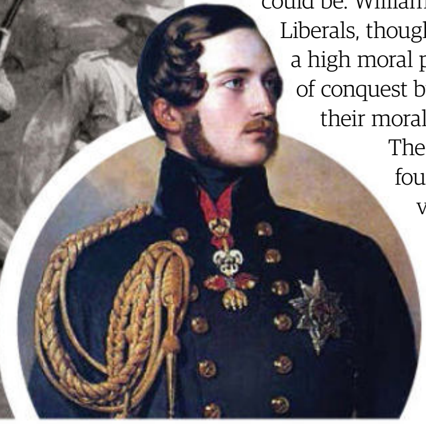
Emerging from humble beginnings, the East India Company began as a simple enterprise of London businessmen who wanted to make money from importing spices. The company was granted a royal charter by Queen Elizabeth I in 1600, and in 1601 James Lancaster led its first voyage. The company set up trade outposts in Indian settlements that slowly developed into commercial towns. Steadily increasing its territory, the company claimed vital trading ports from Aden to Penang. As its control extended, the company became the most powerful private company in history, with its own army established by Robert Clive, the first British governor of Bengal. With its great military power behind it, the company controlled India with a combination of direct rule and alliances with Indian princes. The East India Company eventually accounted for half of the world's trade, specialising in cotton, silk, tea and opium.



Lancaster was an Elizabethan trader and privateer



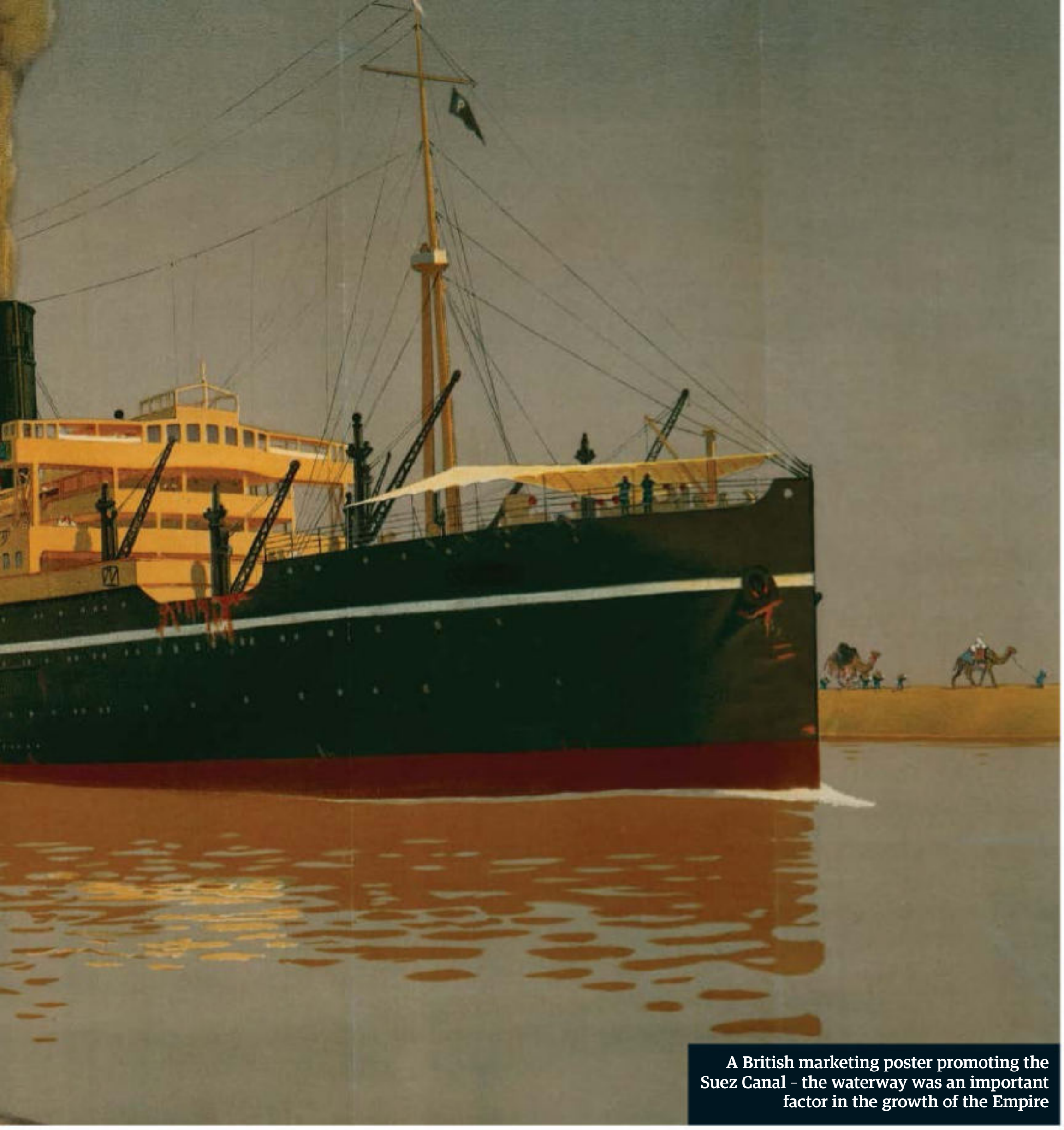
The Argyle and Sutherland Highlanders before the 1899 Battle of Modder River during the Second Boer War



inconsolable; the loss of the love of her life changed not only herself as a person, but the fate of her empire. As she donned the mourning clothes she would wear until her own death, she drew a veil over Albert's vision and pursued a different path for her kingdom - one of world domination.

An emerging figure in Parliament would come to foster her views: Benjamin Disraeli. The ambitious and rebellious leader of the Conservatives was led by a passion for imperial power and glory. Inspired by tales of imperial adventures, Disraeli believed Britain should pursue an empire of power and prestige. His most direct political opponent represented everything Albert dreamed the Empire could be. William Gladstone, the leader of the Liberals, thought the Empire should serve a high moral purpose, to follow not a path of conquest but one of commerce, sharing their moral vision with the world.

These two fiery and driven men fought over these opposing visions in Parliament while Victoria continued to mourn. Without Albert she felt incompetent and unable to face the immense duty that her role dictated. With her strong conservative views she found Gladstone and



A British marketing poster promoting the Suez Canal – the waterway was an important factor in the growth of the Empire

> "The Industrial Revolution changed Britain from a quaint maritime nation into a manufacturing giant"

his liberal reforms dangerous and unpredictable. Disraeli, suave, coy and dripping with forthright confidence, enchanted the lonely queen. With his constant flattery and sharp wit, Disraeli reignited her interest in politics and captivated her, as Albert had done so previously, with his vision of just how mighty the Empire could be. However, Gladstone's liberal vision and Albert's quest for Camelot had not completely faded. The British people, led by strong Protestant beliefs Victoria herself had instilled in them, felt it was Britain's role – their duty even – to civilise people around the world. They believed the British cause was to export not only trade, but also gospel values of morality and justice.

It was in pursuit of this lofty goal that many missionaries turned their attention to Africa. Little was known of the 'Dark Continent', but the common perception was that it was a place of pagan worship ravaged by tribal wars. One missionary in particular would capture the attention of the British nation. Tall, handsome and heroic, David Livingstone embodied everything the British believed their nation represented. A medical missionary, Livingstone's daring adventures around the continent were followed by a captivated British public. Fighting vicious beasts, battling through dense jungles and suffering a multitude of illnesses, Livingstone was the heroic face of the Empire's Christian ideals.

Livingstone's horrific confrontation with African chain gangs was to drive the British cause of expansion. The slavery rife in Africa was abhorrent to Livingstone and the British public, as the practice had been abolished across the Empire in 1833. The queen and government united behind Livingstone's quest to find a suitable trade route, hoping that by doing so, the African people would find ways of making a living that wasn't built on the backs of slaves. Livingstone's journey was a failure and he returned to scathing criticism – something the imperialist Disraeli leapt on with glee. His flattery of Victoria had completely won her over, and the monarchy and government became united in the pursuit of one goal – the expansion of the Empire.

The perfect opportunity to begin this new project emerged as another nation struggled to survive.

How Queen Victoria came to rule the word

Dominance of the seas

Britain employed a 'two-power standard' in 1889, which called for the Royal Navy to maintain a force at least equal to the combined strength of the next two largest navies in the world. This policy ensured British dominance of the seas with a string of naval bases encompassing the whole world. The sheer size and strength of the navy served its purpose, deterring any would-be competitors and confirming its position as ruler of the waves.

The Industrial Revolution

Britain was the first nation to harness the power of steam and the first to undergo an industrial revolution. This resulted in the mass production of low-cost goods to trade around the world. It also gave Britain's military an array of resources like rifles, steamships and trains, equipping it to defeat any possible enemies. Medical advances also allowed British explorers to penetrate remote areas without fear of tropical diseases.

The quest to spread democracy

Land grabbing aside, the British Empire was led by a strong Protestant desire to improve the world. Britain saw itself as an agent of civilisation – one they wanted to spread worldwide, bringing peace, order and stability. This belief that they were doing genuine good led men like David Livingstone to travel to Africa to spread the word of God, and with it, the British Empire.

Taking advantage of the competition

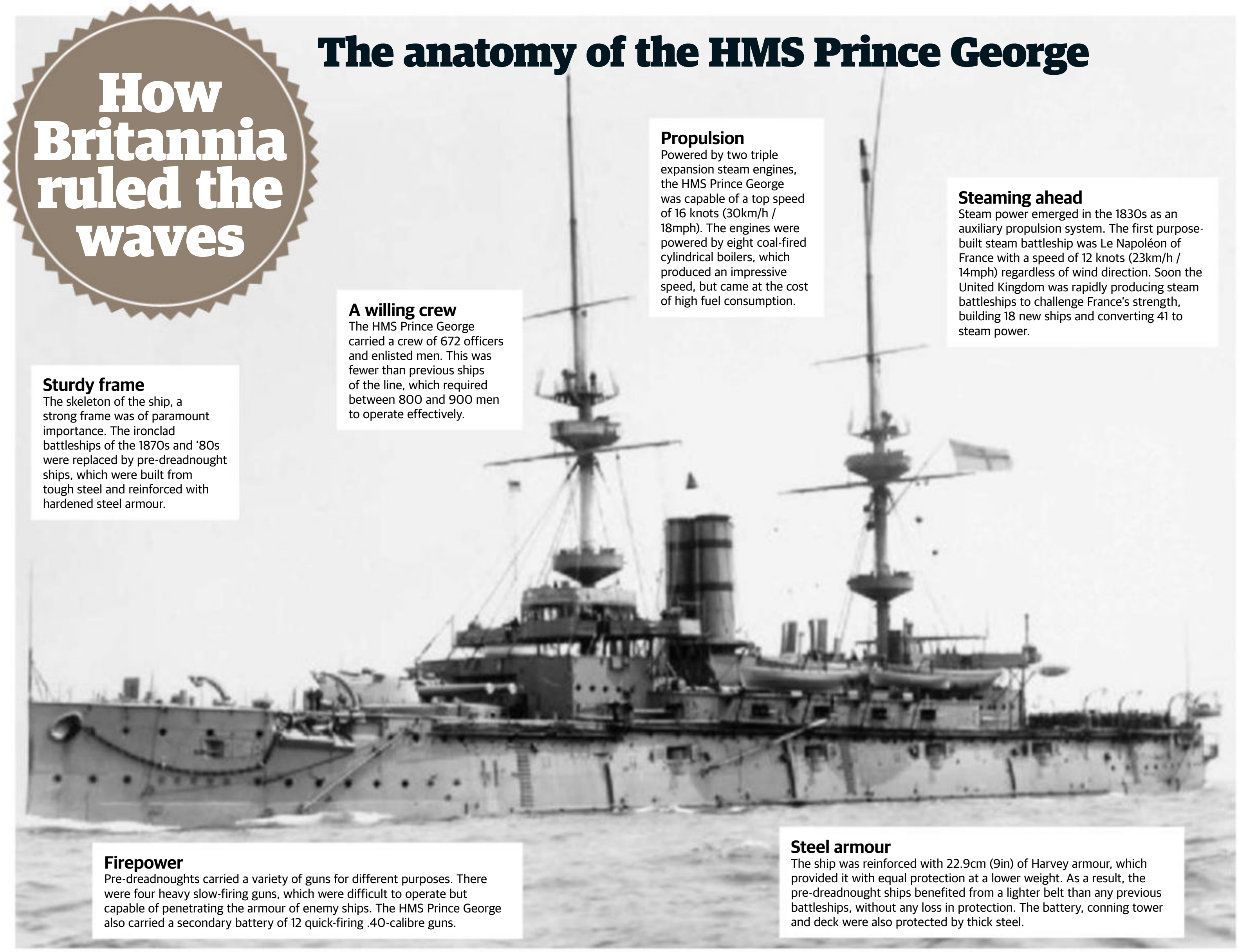
As major powers of the world such as Spain, France, the Netherlands and the Ottomans were losing power, the British began to peak in strength. Britain was able to take advantage of the European wars that had weakened other nations as it enjoyed a period of relative peace, allowing uninterrupted expansion of its empire. Any threats that did emerge, such as Russia, just gave Britain new zeal to cement its powerful hold on the world.

Strong leadership

Britain was ruled by a single monarch throughout most of the 19th Century – Queen Victoria. The record-breaking length of her reign brought a sense of stability and contributed to the unconquerable notion of the British Empire. Although Victoria did involve herself in government, her role was symbolic rather than one of direct power, which ensured stability of British politics. While other nations were dealing with socialist movements, Britain enjoyed a long period of relative domestic peace.

How Britannia ruled the waves

The anatomy of the HMS Prince George



Propulsion
Powered by two triple expansion steam engines, the HMS Prince George was capable of a top speed of 16 knots (30km/h / 18mph). The engines were powered by eight coal-fired cylindrical boilers, which produced an impressive speed, but came at the cost of high fuel consumption.

Steaming ahead
Steam power emerged in the 1830s as an auxiliary propulsion system. The first purpose-built steam battleship was Le Napoléon of France with a speed of 12 knots (23km/h / 14mph) regardless of wind direction. Soon the United Kingdom was rapidly producing steam battleships to challenge France's strength, building 18 new ships and converting 41 to steam power.

A willing crew
The HMS Prince George carried a crew of 672 officers and enlisted men. This was fewer than previous ships of the line, which required between 800 and 900 men to operate effectively.

Sturdy frame
The skeleton of the ship, a strong frame was of paramount importance. The ironclad battleships of the 1870s and '80s were replaced by pre-dreadnought ships, which were built from tough steel and reinforced with hardened steel armour.

Firepower
Pre-dreadnoughts carried a variety of guns for different purposes. There were four heavy slow-firing guns, which were difficult to operate but capable of penetrating the armour of enemy ships. The HMS Prince George also carried a secondary battery of 12 quick-firing .40-calibre guns.

Steel armour
The ship was reinforced with 22.9cm (9in) of Harvey armour, which provided it with equal protection at a lower weight. As a result, the pre-dreadnought ships benefited from a lighter belt than any previous battleships, without any loss in protection. The battery, conning tower and deck were also protected by thick steel.

The Egyptian ruler, Isma'il Pasha, was confronted by crippling debts after reckless spending on lavish ceremonies and a costly war with Ethiopia. In an act of desperation he made an offer to sell Egypt's shares in the Suez Canal to the British. The canal was more than a mere trading port; it opened up a short route to India across Egypt and down the Red Sea, cutting out the lengthy journey around Africa. The Egyptian ruler's offer would give the British a controlling influence over the jugular of the Empire. Disraeli urged Victoria to accept, she immediately grabbed the opportunity and the Suez Canal fell into British hands.

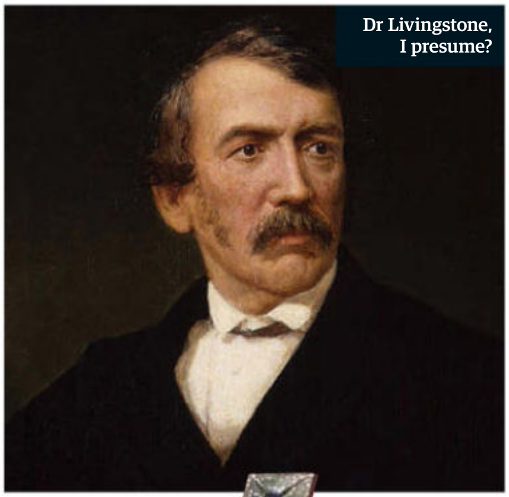
With control of India, Britain was already the most powerful nation on Earth and three-quarters of the world's trade was transported in British ships, but this control was being threatened. The Russian Empire had been steadily expanding east and south and was getting uncomfortably close to Victoria's prized jewel – India. The Middle East was largely controlled by the Turks, but they were busy dealing with violent rebellions. The Turkish treatment of their Christian subjects was shocking and atrocious, but as Russia backed the rebels the British had no option but to support the Turks. The British public, to whom Russia stood for everything Britain opposed – ignorance, slavery and subjugation – largely supported this choice. Facing the prospect of imminent war with the strongest nation on the planet, Russia agreed to peace talks and thanks, in part, to the charisma and negotiation skills of Disraeli, the country agreed to stop their advance on the Middle East.

Imperial spirit rushed through the public as the British muscle flexed and proved its might again. As the Empire continued its steady expansion across the continent, it came face-to-face with the most powerful African nation – the Zulus. The British, with a bloated ego, underestimated the strength of their spear-wielding enemies and suffered a crushing initial defeat. In the end it took 16,000 British reinforcements to prise the Zulus' independence from their grip. Expecting to return to a wave of praise for their daring exploits, the victorious army was surprised to discover that British opinions were changing once again.

Gladstone, the "half-mad firebrand", as Victoria dubbed him, preached his opinions about the mass slaughter of Zulus and rampant destruction of their homes. Victoria was outraged but the public sided with Gladstone and, much to the queen's dismay, the power of the government switched hands once more. Liberal leader or not, all of Europe's attention was firmly fixed on Africa as nations began a scramble to establish colonies there. In amongst this mad rush to establish new territory by European powers, it was arguably one man's actions that would determine the ultimate fate of Victoria's Empire.

Led by Muhammad Ahmed, revolution was tearing through the Sudan as tribes rose against their corrupt rulers. As this holy war drew uncomfortably close to the Suez Canal, Victoria

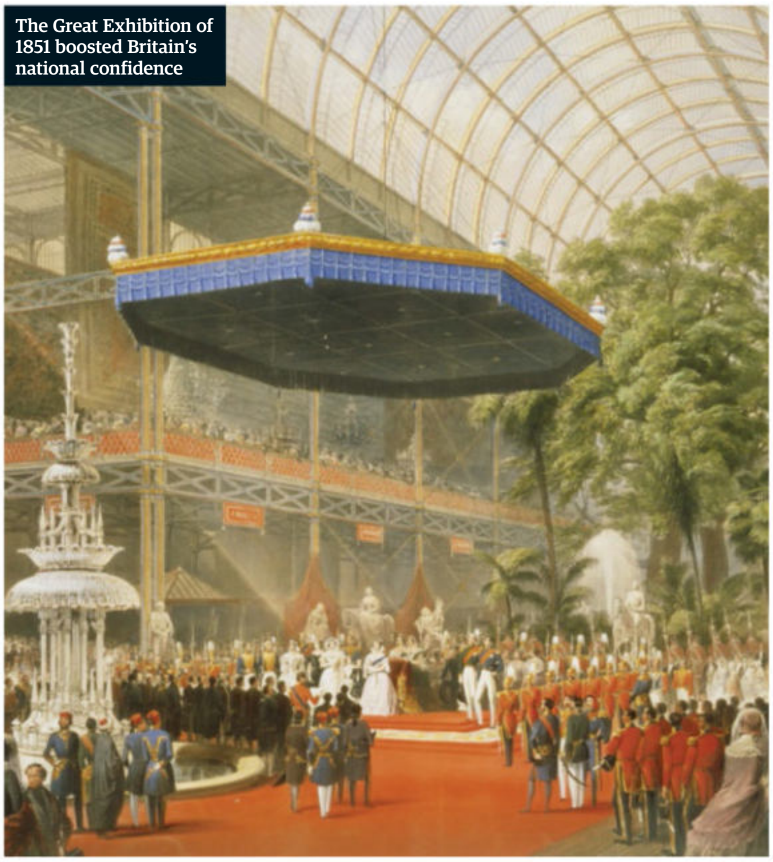
“They believed the British cause was to export not only trade, but also gospel values of morality and justice”



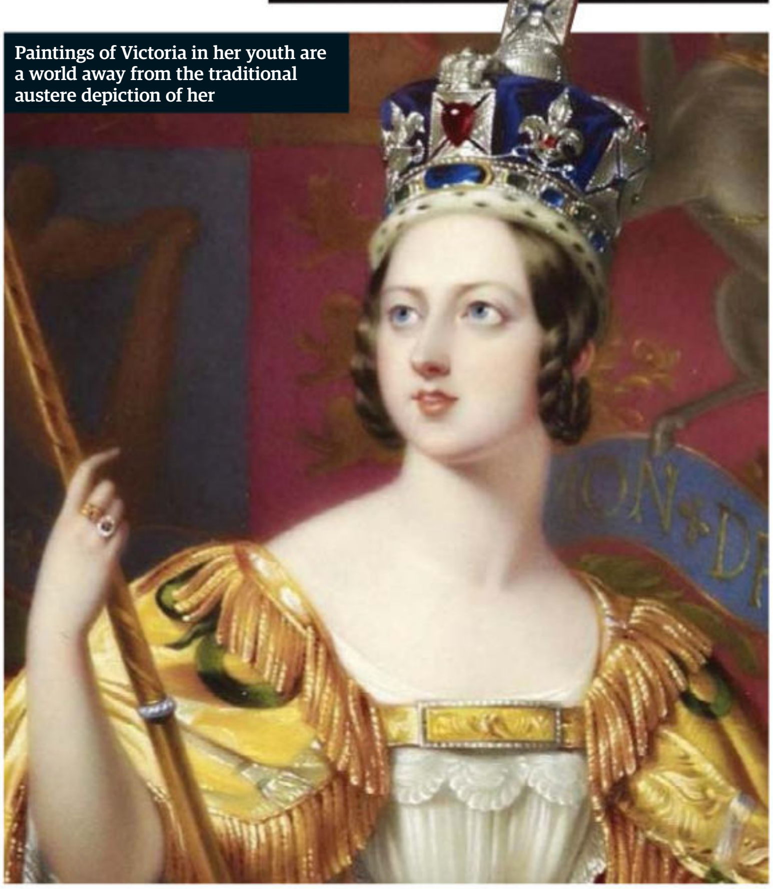
Dr Livingstone, I presume?

urged Gladstone to utilise the British troops stationed there to defend it. The liberal leader refused. In order to buy time he sent one man, General Charles Gordon, to secure the evacuation of loyal civilians and soldiers.

Like Livingstone, Gordon was a national hero. He was brave, dashing, popular and his decorated military career had painted him in the British public's eyes as a gleaming knight of old. Despite these qualities, Gordon was also wild and unpredictable. When he reached the Sudan he was horrified by the slavery rife in the region and decided to face the Mahdi in battle. With limited forces, Gordon soon found himself besieged in the city of Khartoum. His appeals for aid, to the adoring public's outrage, fell on deaf ears in the government. It took more than eight months of public fury to finally force Gladstone's hand, but it was too late – Gordon, the nation's hero of Christianity, was dead.



The Great Exhibition of 1851 boosted Britain's national confidence



Paintings of Victoria in her youth are a world away from the traditional austere depiction of her

Main competitors

Three countries that were battling with Britain for territory

Russia

As England expanded its territory, so did Russia. For a hundred years Russia expanded east and south, narrowing the gap between the British and Russian Empires in Central Asia. Britain soon became obsessed with protecting India, which was a rich source of goods and manpower. The competition for dominance of the states that separated them – Iran, Afghanistan and Tibet – became commonly known as The Great Game. The looming, but unlikely, threat of Russia's attack led Britain into largely unnecessary military involvement in Afghanistan and Tibet.

Germany

From 1850 onward, Germany began to industrialise at an astonishing rate, transforming from a rural nation to a heavily urban one. In the space of a decade Germany's navy grew massively and became the only one able to challenge the British. Although the German Empire of the late-19th Century consisted of only a few small colonies, the newly unified state slowly moved toward colonial expansion in Asia and the Pacific. As Wilhelm II rose to power, his aggressive policies in achieving a 'place in the sun' similar to Britain was one of the factors that would lead to WWI.

France

Britain's age-old rival, France was still licking its wounds after the loss of most of its imperial colonies in the early part of the 19th Century. However, French leaders began a mission to restore its prestige in 1850, seeking to claim land in North and West Africa as well as in Southeast Asia. After the defeat of France in the Franco-Prussian War, it continued with zeal to expand its empire, acquiring land in China and all over Africa. Unlike most of its rivals, France would continue expanding after WWI and well into the 1930s.

Eye-watering empire facts

458 million
people ruled over

23%
of the world's surface was ruled by Britain

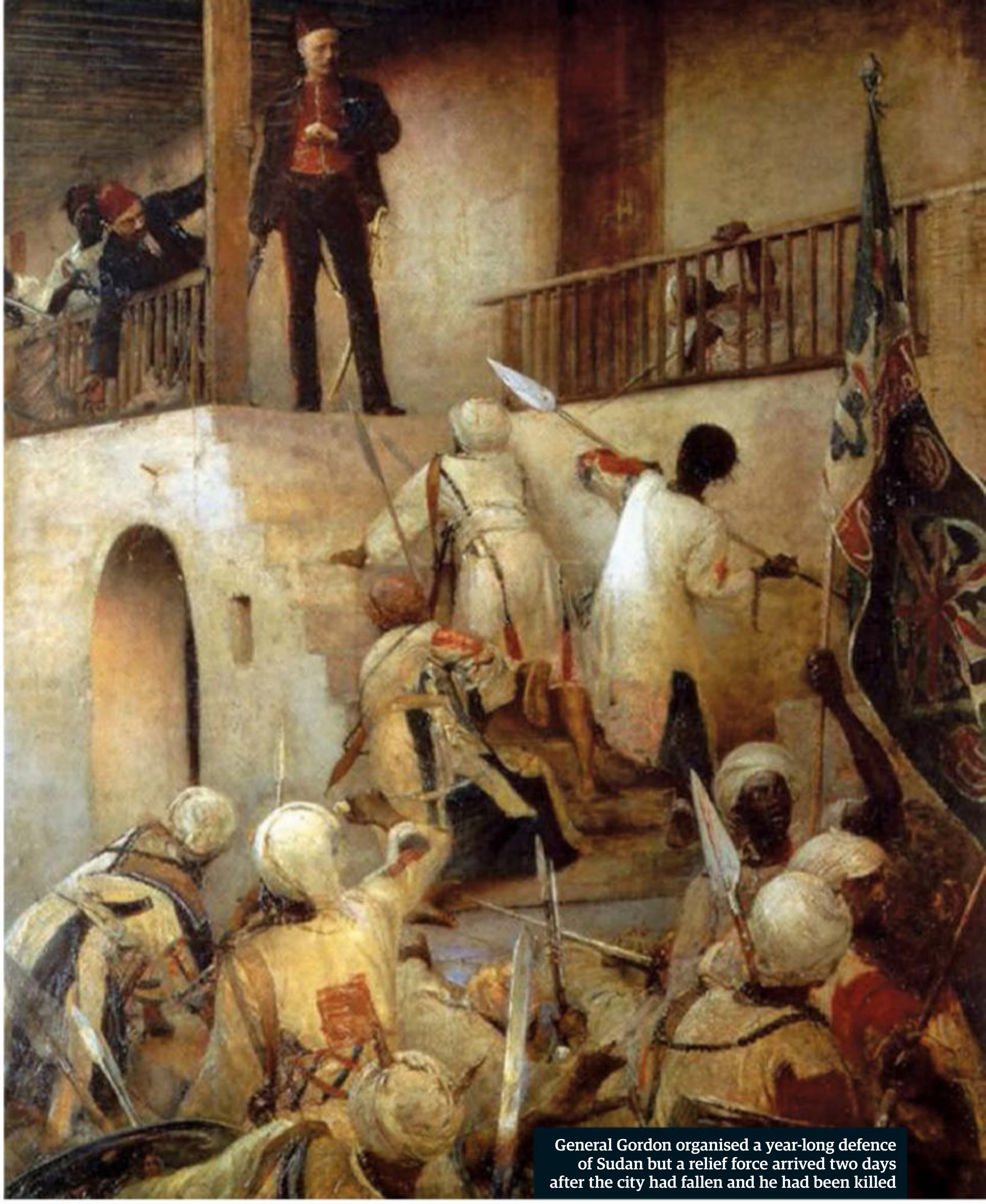
13.01 million
square miles of land belonged to the empire

113
ships in the Royal Navy

63 years & 21 days
the length of Victoria's reign

165,000
convicts sent to Australia

7,010,000
total goods shipped by Britain in one year (1881)



General Gordon organised a year-long defence of Sudan but a relief force arrived two days after the city had fallen and he had been killed

> "The monarchy and government became united in the pursuit of one goal - the expansion of the Empire"

In an instant the liberal vision was shattered, Gladstone was voted out and his moral influence departed with him. The renewed crusading spirit of British imperialism found its poster boy in a man who would lead the Empire down a dark and dangerous path. Moving from England to Africa to work on a cotton farm, Cecil John Rhodes had become outrageously wealthy from the diamond rush, but he wanted more - the whole of Africa. Driven by greed and lust for power, Rhodes wished to create a British colony across Africa, not for the betterment of its people or to spread Christian values, but for profit and business.

Using the tenacity and cunning that had elevated him to success, Rhodes tricked and butchered his way across the continent with the British government backing him every bloody step of the way. Rhodes made it his purpose to make the world English and famously said, "If there be a God, I think that what he would like me to do is paint as much of the map of Africa British Red as possible." His path of colonial greed led Britain head-first into a conflict now known as the Boer Wars.

Gold had been found in Transvaal in northern South Africa, and Rhodes worried that this would prompt an alliance with the Germans, thus cutting off his route to the north of the continent. Rhodes planned an uprising to overthrow the Boer leaders, but it did not go as planned - far from the naked, spear-wielding foes he had previously conquered, the Boers had guns, and they fought back hard with skill and courage.

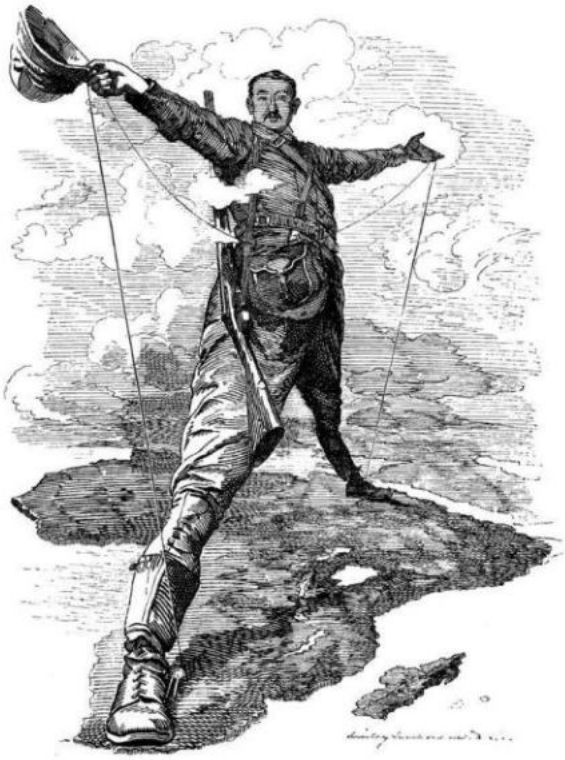
Outrage tore across Europe against what was seen as an unprovoked attack on an independent state, but not in Britain. Fully convinced of their noble mission, the British people believed the Boers

“As more British bodies piled up, British confidence in their own unconquerable might began to wane in Africa”

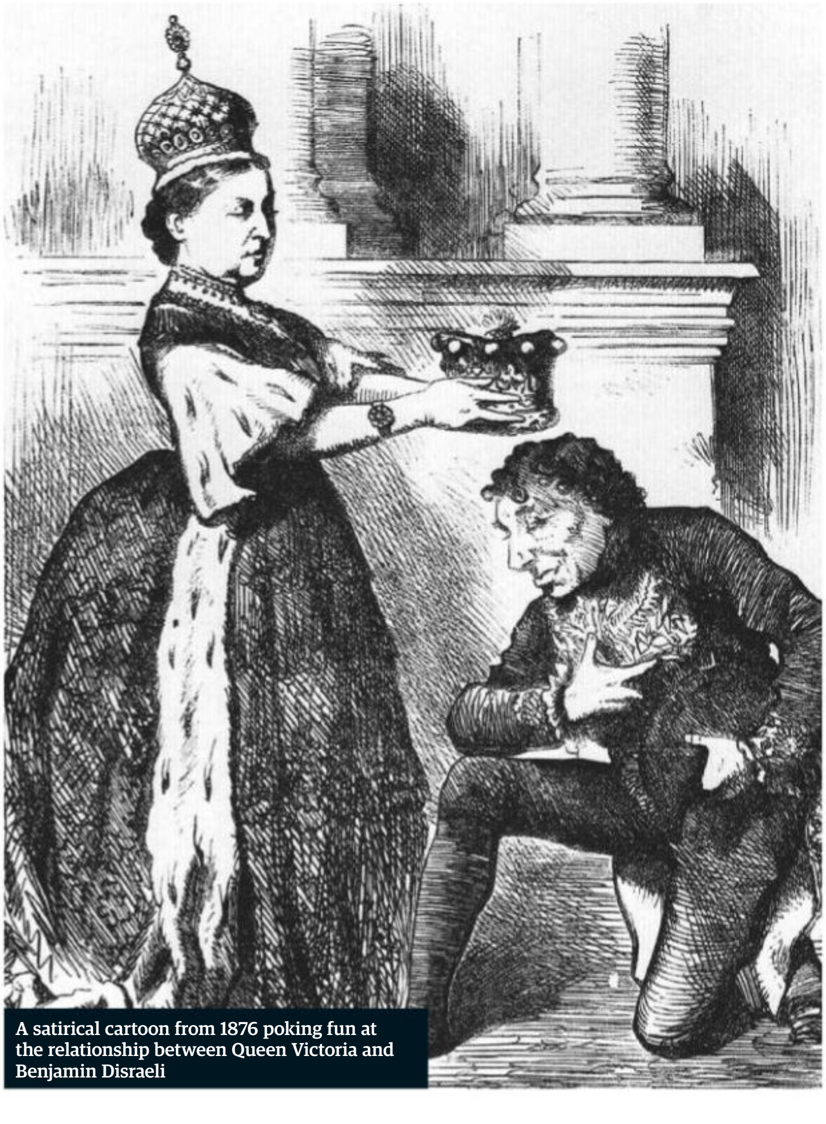
to be vicious and uncompromising. More soldiers poured into the region, into a war they believed would be short and glorious, but as more British bodies piled up – Victoria's own grandson among them – British confidence began to wane.

As British reinforcements continued to flood into the territory the tide slowly began to turn. Rhodes had managed to squeeze a win from the jaws of defeat and the Boer territories became British colonies. The Empire had grown, but at a cost. Rhodes' controversial actions during the war – including forming what would come to be known as the first concentration camps – had been a step too far for the British public. What had begun as a noble quest of Christianity had transformed into a greedy and brutal scramble for power. When Rhodes died his merciless version of imperialism was buried with him in the dry African dirt.

When Victoria passed away she was finally rid of the black mourning clothes she had worn for 40 years and was dressed entirely in white. Spring flowers were scattered around her body and her wedding veil was placed on her head as she prepared to reunite with the dearest love of her life. She was, however, leaving another behind; the Empire she had mothered now stretched across the globe with large swathes still coloured in the pink of British rule. As the sun set on the quiet room in which she lay in Osborne House, it was rising on the bustling spice markets of India, and soon the vast plains of British land in Africa would be bathed in warm golden light. Victoria had died, but the legacy she left behind continued to expand over the face of the planet. Even without their driver, the cogs of the British Empire whirred steadily on for another half century at least.



1892 caricature of Cecil Rhodes, after he announced plans for a telegraph line and railroad from Cape Town to Cairo



A satirical cartoon from 1876 poking fun at the relationship between Queen Victoria and Benjamin Disraeli

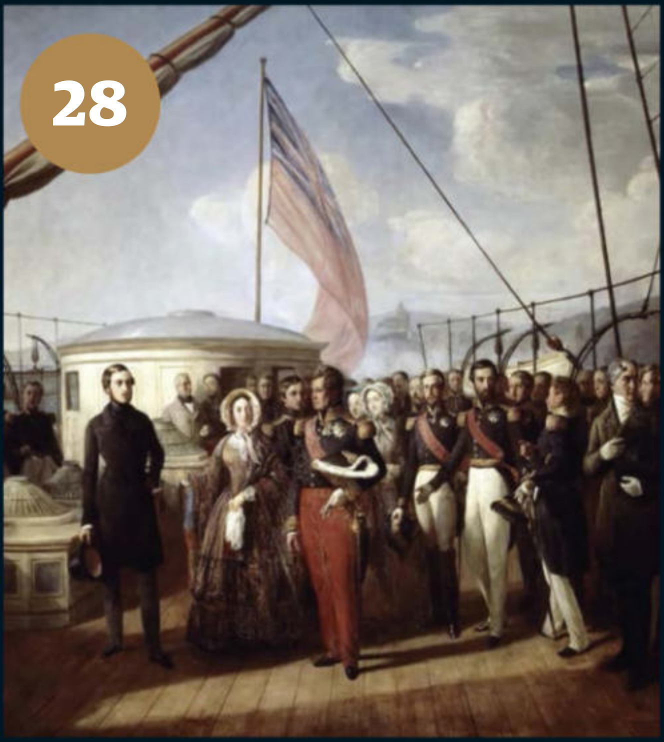
QUEEN VICTORIA

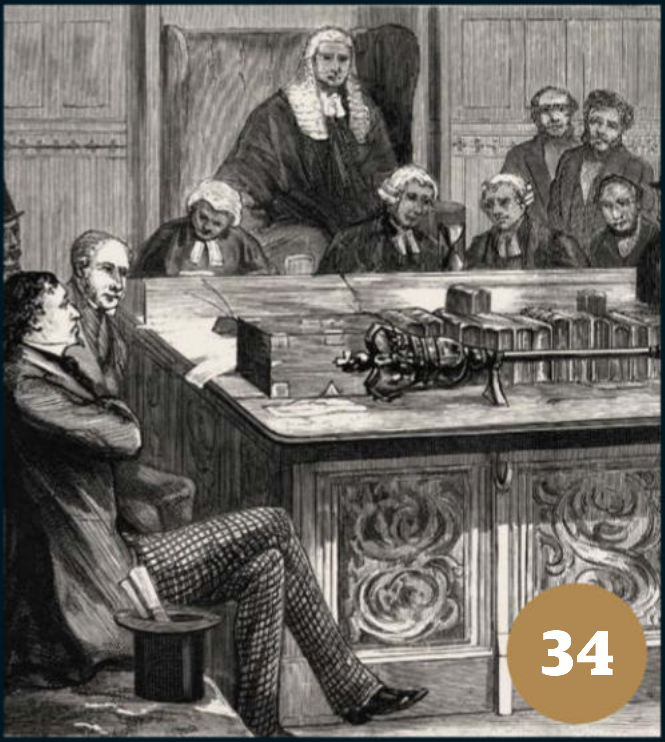
Explore the life of a monarch who reigned over a vast empire for 63 years and became an emblem of matriarchy

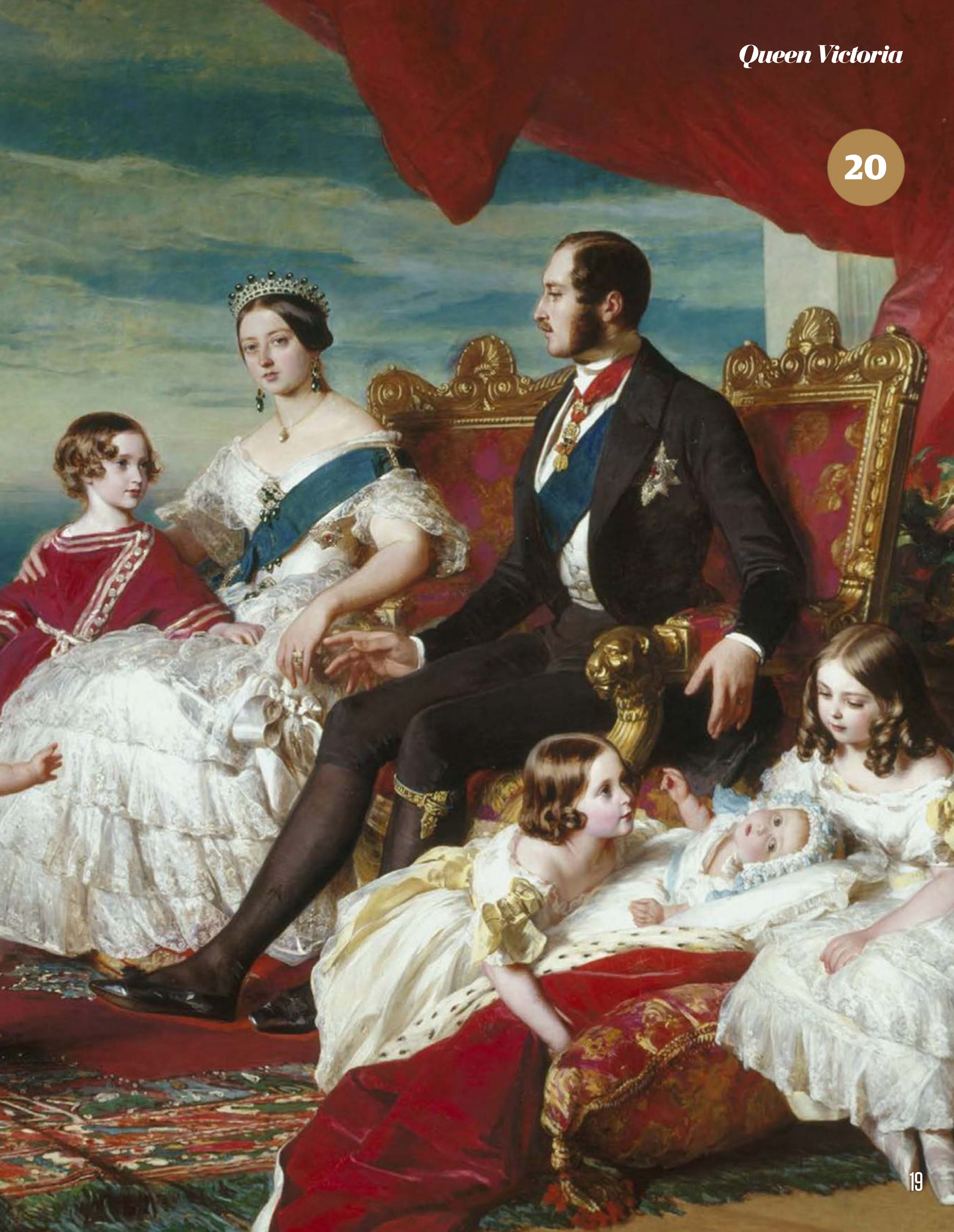
20 Victoria's family portrait
Uncover the personal and private lives of a complicated monarch and her family

28 Power & influence
Grasp the political impact and influence Victoria - and her close advisors - wielded over the nation

34 Disraeli vs Gladstone
Follow the bitter and enduring rivalry of the two most memorable prime ministers of Victoria's time






20

Victoria passed haemophilia to Leopold and to other European royals via her daughters

Victoria's family portrait

Queen Victoria and Prince Albert appeared to the world to be the image of marital bliss. But behind closed doors there were ample tears and tantrums

On a cold, dark evening, Queen Victoria stood at the top of the main staircase at the heart of Windsor Castle. It was 7.30pm on 10 October 1839, and she was expecting two visitors from Germany: Albert and his brother Ernest. The trio had met before but the queen had not been very impressed. At a dinner three years earlier, Albert in particular had proven to be a slovenly, shy and awkward guest, prone to yawning and sleeping in the afternoon. She was unimpressed by his weight and feared he had shown little time for court life. But as he walked into her view that evening, her opinion of him suddenly changed.

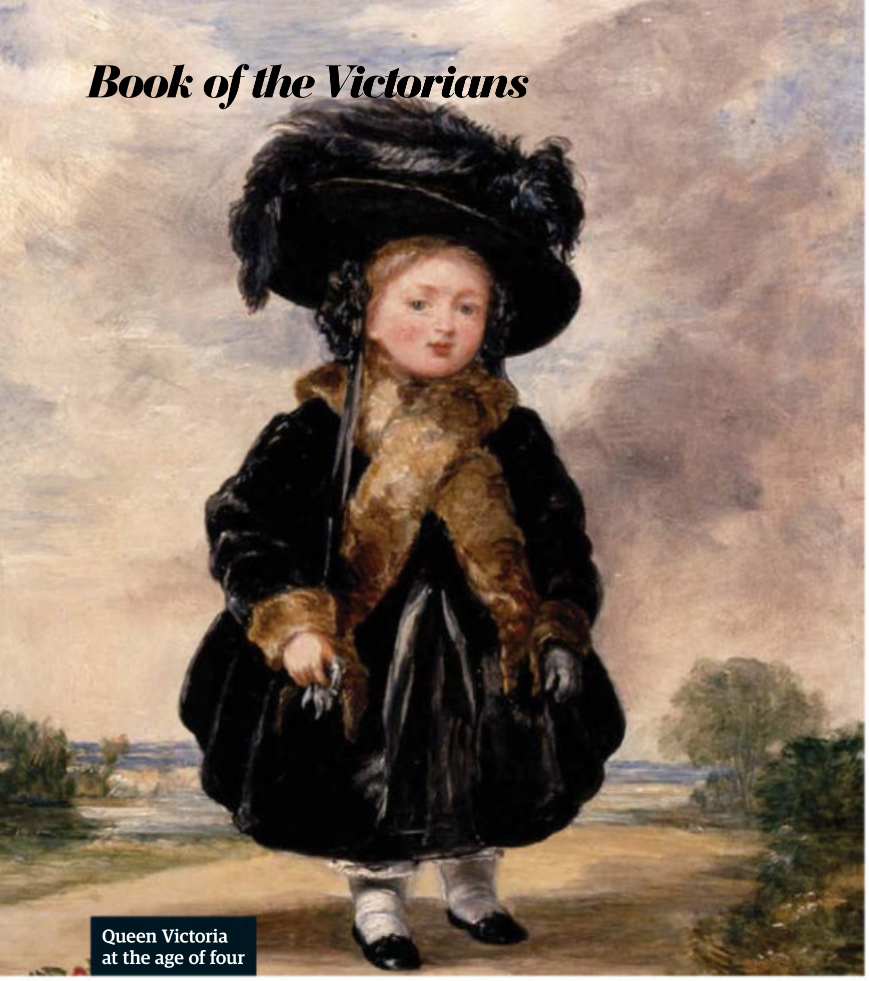
Albert – a German prince of Saxe-Coburg, a small German kingdom with a strong role in the dynastic and political history of Europe at the time – was her first cousin. He had been educated well throughout his childhood and he studied law, political economy, philosophy and art history at the University of Bonn. Albert had become a fit young man, a keen gymnast and rider. He also played music and he proved himself to be rather cultured. All of this pleased his family, not least Victoria and Albert's grandmother, Duchess Augusta. She had been keen to arrange the pair's previous meeting and she hoped they would marry.

"It was with some emotion that I beheld Albert – who is beautiful," Victoria would write of the encounter in 1839, finding the prince "grown and changed and embellished." She saw before her an "excessively handsome" man with "such beautiful blue eyes, an exquisite nose, and such a pretty mouth with delicate mustachios and slight – but very slight – whiskers."

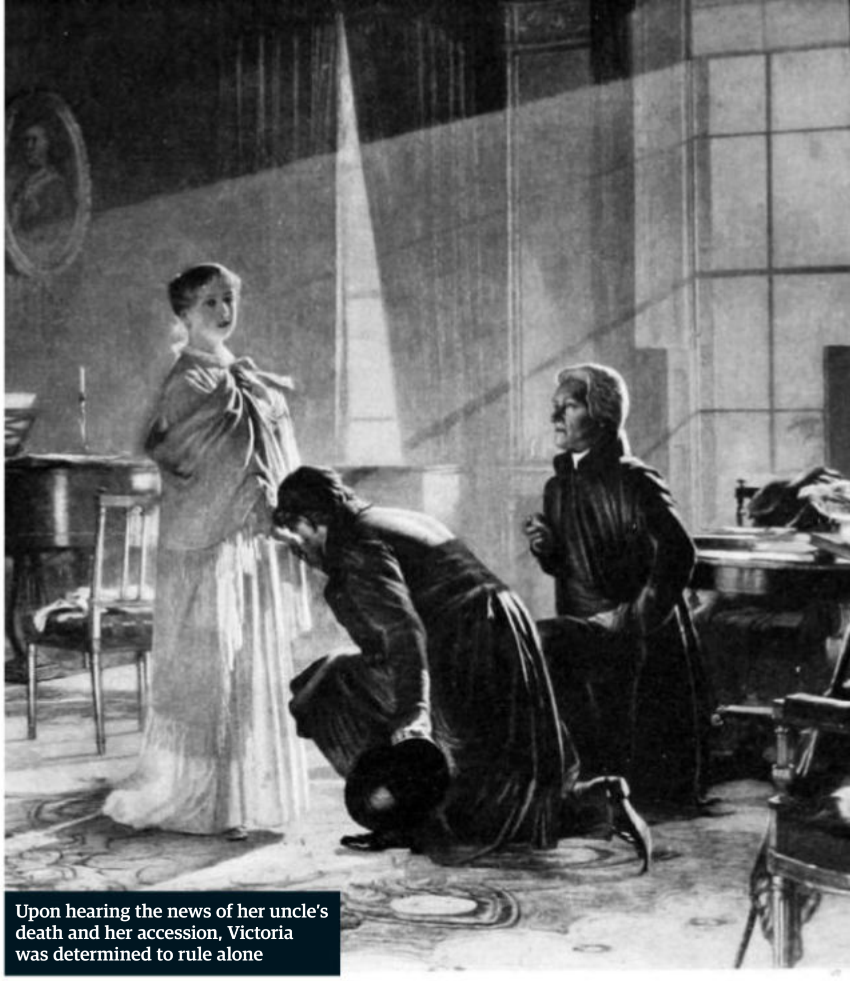
So infatuated was the sovereign that she invited Albert to Windsor Castle five days later. "We embraced each other over and over again and he was so kind and so affectionate," she wrote. On 10 February 1840, the couple – both aged 20 – married at the Chapel Royal, St James's Palace.

Albert was a hard worker and an intelligent man, educated throughout his childhood by a tutor called Christopher Florschutz, who effectively raised both him and his brother. Florschutz was a true constant in Albert's life, given his father had divorced his mother on grounds of adultery and banished her to Switzerland when the prince was only seven years old. But Albert also had a strong sense of entitlement and a stern will. With Victoria's love for him so intense, the prince was able to exert control over her.

The pair were constantly engaged in a power struggle and there were terrible rows between them. Albert effectively wanted to be Britain's king in all but name, and he was single minded in his determination to make his presence in the country known. He quickly replaced the prime minister, Lord Melbourne, as the main influencer of Victoria's political views, wedging a distance within the close friendship that the queen and the Whig party leader had long enjoyed. Crucially, he also made Victoria feel less capable than him. The tension bubbled close to the surface.



Queen Victoria at the age of four



Upon hearing the news of her uncle's death and her accession, Victoria was determined to rule alone

There were many differences of opinion. Respected historian Jane Ridley notes in her biography, *Victoria: Queen, Matriarch, Empress*, that the pair rowed over how their children should be cared for. Following one particular flare-up regarding their first child – also named Victoria, Vicky for short – Albert pushed a note under the queen's door. "I shall have nothing more to do with it; take the child away and do as you like and if she dies you will have it on your conscience," he wrote.

The disagreements over childcare led to the departure of Baroness Louise Lehzen, who had controlled the court and the queen's private expenditure. Albert did not like Lehzen "who regards herself as a demi-god." Reluctantly, Victoria agreed. "I am ready to submit to his wishes as I love him so dearly," she wrote in a letter to Baron Stockmar, the Anglo-Belgian statesman sent by Prince Leopold of Saxe-Coburg-Gotha to serve as her adviser.

The couple had nine children in total. Victoria had become pregnant within weeks of marrying Albert, and Vicky had been born on 21 November 1840. Her second, Albert Edward, was born the following year, Alice two years later and Alfred the year after that. Helena came into the world in 1846, Louise in 1848, Arthur in 1850, Leopold in 1853 and Beatrice in 1857. Nine children in 17 years meant that for much of her marriage Victoria was carrying a baby or nurturing her newborns. Yet she hated being pregnant. "I think much more of our being like a cow or a dog at such moments," she would later write to an adult Vicky. She would also reveal: "I have no adoration for very little babies." And she would clarify: "An ugly baby is a very nasty object – and the prettiest is frightful when undressed."

The queen was a prolific letter writer. She would write an average of 2,500 words every day, and she did so for 70 years. They would be impulsive, revealing her feelings and thoughts as and when they came to her. From the age of 13, they allowed her to release her emotions and reveal her character. Yet her early life was a lonely one. Victoria's father, the duke of Kent, died when she was eight months old, and she was brought up by a controlling – yet indulgent – single mother, Victoire, a German princess.

Aged 15, Victoria is said to have had an affair with a Scottish nobleman, the 13th Lord Elphinstone

Victoria was addressed as 'your royal highness' from a very young age, and she was a spoilt child. But she was also closely monitored and under constant scrutiny. In 1830, when Victoria was 11 years old, Lehzen introduced 'behaviour books', in which an assessment of the princess's attitude was recorded. She was also educated in isolation under what was called the 'Kensington System', an elaborate and strict set of rules devised by her mother and attendant Sir John Conroy.

Her freedom was curtailed, her life restrained, and she began to feel her mother had become hard of heart. Victoria had been diagnosed with typhoid in 1835, aged 16, and Victoire had failed to nurse her. Instead, she and Sir John tried to persuade Victoria to make him her private secretary upon her succession and agree that she was not fit to rule until she was 21. Victoria resisted. She hated Sir John, who bullied her and called her ugly and unintelligent. So when she became queen aged 18, following the death of her uncle, King William IV, Victoria dismissed Sir John from her own household and dropped her mother too. If she was to rule, she surmised, she would do so alone.

Her marriage to Albert changed her approach entirely, though. Her frequent pregnancies meant she wasn't always able to carry out her full suite of duties alone, so Albert would step up and take on more of the work. He enjoyed this immensely, but it did put a strain on the relationship. Victoria wished to spend more time with him, but he would throw himself into his work, often becoming a prisoner of his own ideas (Ridley notes that he spent hours relentlessly transcribing and editing letters written by the queen, or in reality written by him, to suit a new topic-based filing system he had created). As time went on, Albert would become responsible for running the queen's household, estates and office.

On many occasions, Victoria's temper came to the fore. She would remind Albert that she was the queen and insisted that she got the upper hand. Yet she would usually relent, writing apologies and actually helping Albert boost his power further. Deep down, she wanted her husband – a man who the British public had found hard to accept – to be embraced. Her feelings of pride when he opened his personal project, the Great Exhibition in Hyde Park in 1851, were stark. But at the same time, she felt her power being diminished, her temper becoming so heated at times that some feared she was losing her mind.

Ridley notes in her biography that as early as 1842 Albert began to attend ministerial meetings and the queen spoke not of "I" but "we." Albert

“Albert wanted to be everything to the queen. Deep down, what he really wanted was to be king”

would write many of the queen's important letters and sit beside her as she received ministers. Decisions would most often be made by him and he would agonise over them, his political mind working overtime trying to come up with the perfect solution. He wanted to be everything to the queen: the sole confidential adviser in politics, the private secretary and the permanent minister among many. Deep down, what he really wanted was to be king.

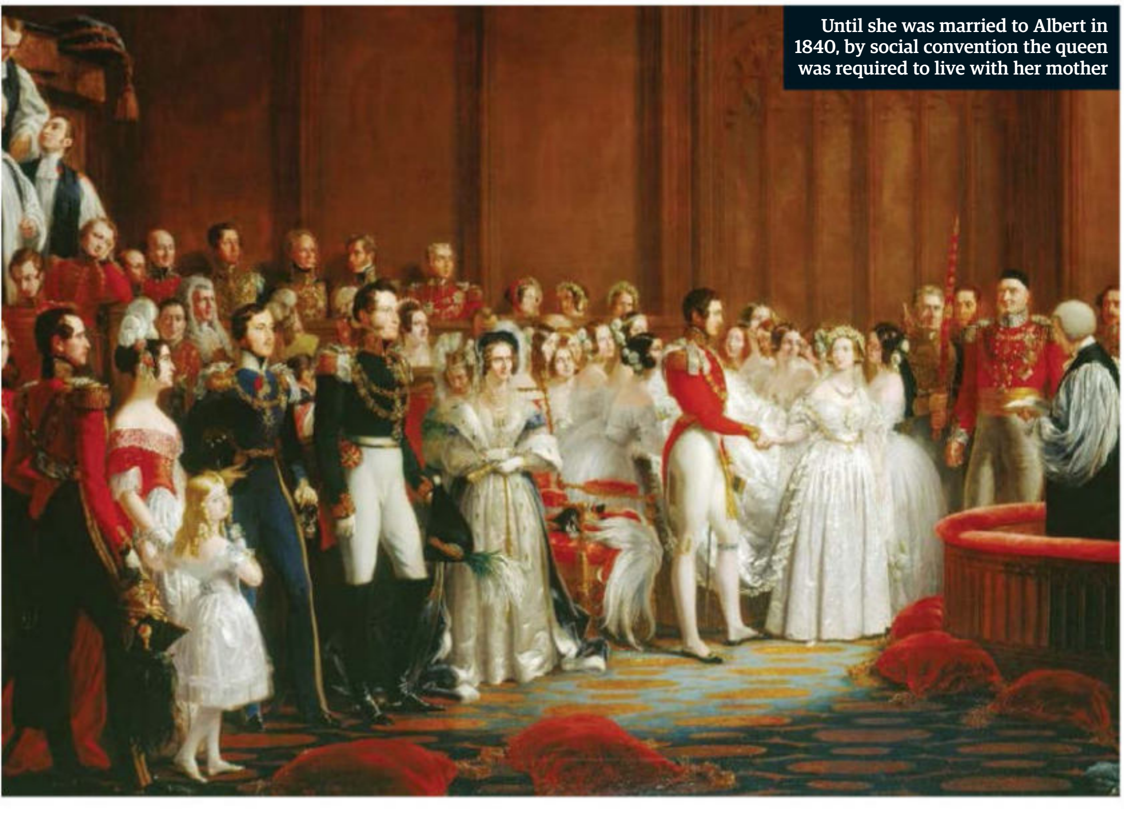
But there is no doubt there was great love between the two. It may not have been domestic bliss, but neither was it an arranged marriage: Victoria had asked Albert to marry her precisely because she adored him. Yet on whether there was the same love for her children, historians are split.

Biographer Julia Baird says Victoria's diary entries in the 1840s and 1850s “reveal a mother who delighted in her children with a marked tenderness.” But there are plenty of entries in her journals to suggest she was unhappy being a mother. Victoria made no secret of her dislike for breastfeeding, employing a wet nurse for such duties. She also preferred time spent being intimate with her husband than play with her children. As a result, many historians have labelled the queen a “domestic tyrant” who controlled her offspring in the same tight, demanding way that she herself had been brought up. She may have been hands-on, as was Albert, but she would also scold and beat them. Helen Rappaport, author of *Magnificent Obsession*, says Victoria and Albert were “pretty awful parents.”

Even so, the queen felt it was important for the children to spend as much time with their parents as possible. And with so much to deal with – her many children to manage, her affection for her husband and the strains of her duties – she could perhaps be forgiven for feeling exhausted, stroppy and temperamental at times.

Whenever Albert was away, Victoria pined for him. When he was around and wasn't giving her his full attention, she could fly off the handle at the drop of a hat. Albert would carefully steer her and tell her what to say and what to write. He believed Victoria to be intellectually inferior to him, and she was subservient. She expected her offspring to show the same level of obedience she showed to him.

During the wars of German Unification, Princess Vicky identified with Prussia's cause



Until she was married to Albert in 1840, by social convention the queen was required to live with her mother

Victorian courtship

The upper echelons of society abided by certain rules of etiquette when it was time to find a partner

Go to a ball

1 Young Victorian women will make themselves officially available, typically by attending a dance or a ball. An older chaperone will maintain a watchful eye while potential suitors express interest in a dance. The woman will select the most suitable.

Talk and walk

2 Once a potential match is found, the courtship can begin. Suitors will have a (clean and proper) conversation under the watchful eye of the chaperone, but physical contact is forbidden. All being well, the couple may take a walk together.

Be flirtatious

3 It is perfectly acceptable for some flirtation, but not excessively so. It is also important for the man to be accepted by the woman's parents – this is usually helped by a man being deemed financially ready for marriage.

Keep company

4 If the couple want to continue seeing each other, they 'keep company'. Further chaperoned dates will take place, again without any physical contact. Love letters will be written and gifts, including locks of hair, can be exchanged. Women should keep a diary.

Get engaged

5 The man may propose. There is no backing out of engagements, but it allows for unchaperoned dates. Providing the suitors are of the same class and at least aged 12 for females or 14 for males, a marriage can go ahead.

Royal romances?

There have been a fair few 'perfect' royal marriages in history, but were they all that they seemed?

William the Conqueror and Matilda of Flanders

Although the couple, who married in 1053, had been excommunicated by the pope, they remained together until Matilda died in 1083. Her death caused William to become deeply depressed, but they had at least four sons and five daughters and their marriage was said to be happy. There were rumours that she had been in love with the English ambassador to Flanders, though.

True love? Yes

Edward IV and Elizabeth Woodville

Edward IV and Elizabeth Woodville were a mismatch from the beginning: a royal and a minor noble. But the king is said to have instantly fallen in love with her. He married her without haste, albeit in secret. This caused great upset and Elizabeth gained a reputation (whether justified or not) for using her position as queen to further the cause of her relatives.

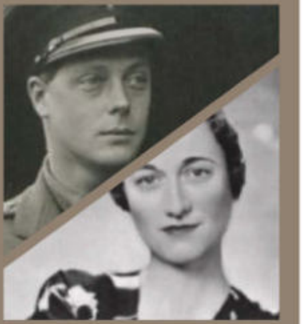
True love? Perhaps

George II and Caroline of Brandenburg-Ansbach

It may have been a diplomatic marriage, but George II and Caroline very quickly fell in love. He respected her opinion and she exercised influence over him. She also proved to be strong and was able to keep the king's mistresses in check. Indeed, their main problem was their debt-laden playboy son, Frederick, Prince of Wales. When Caroline died, George was devastated.

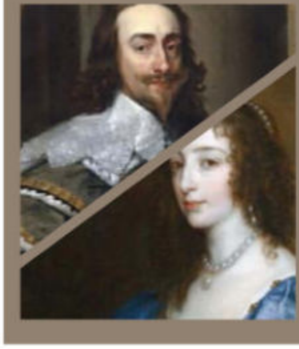
True love? Yes

King Edward VIII and Wallis Simpson



Edward VIII loved American divorcee Wallis Simpson so much that he gave up his throne to be with her. But some historians believe Wallis was seduced by the royal association. Her intimate notes to ex-husband Ernest discussed her uncertainty and revealed that the king had threatened to kill himself if she left. Simpson had a four-year affair with a man 19 years her junior.

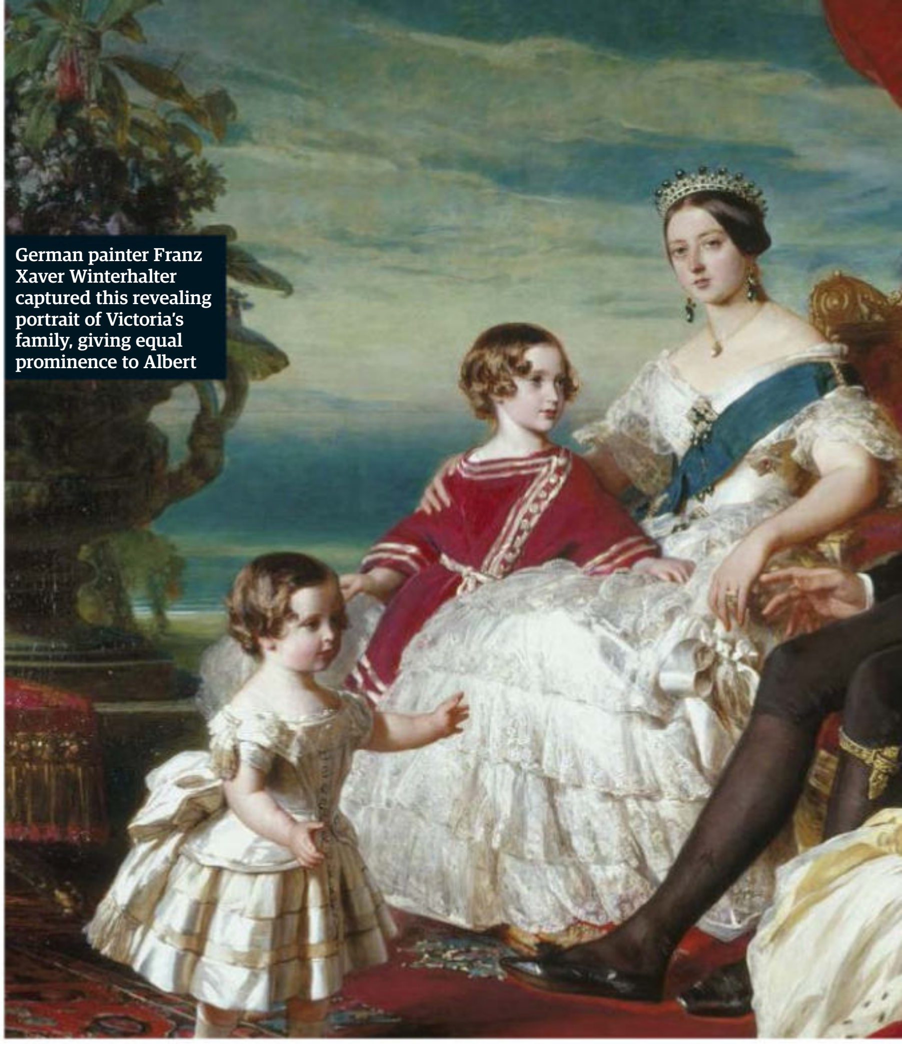
True love? No



Charles I and Henrietta Maria

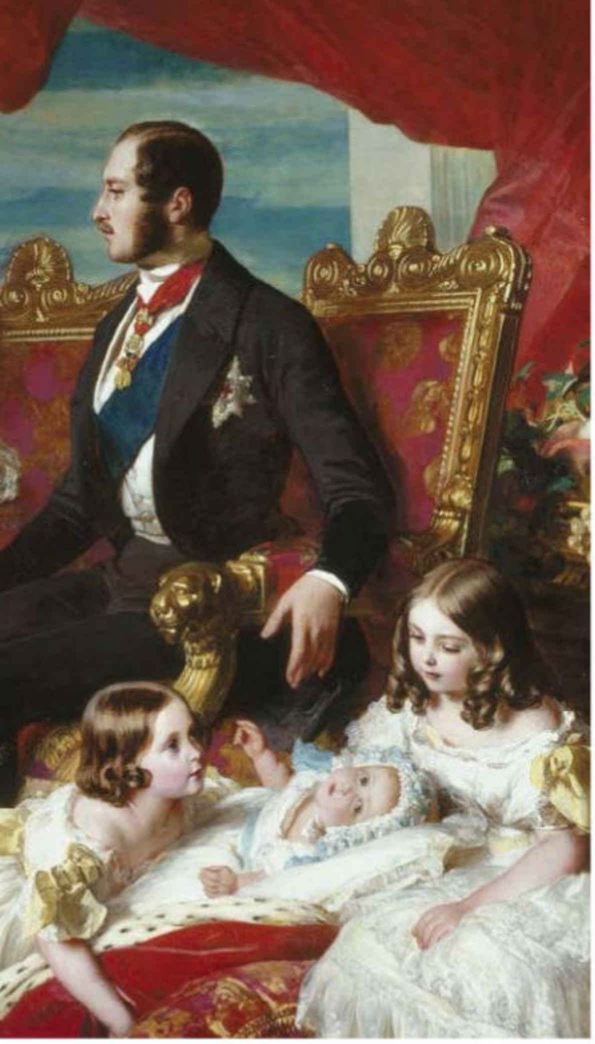
Charles sparked outrage when he wed his French Roman Catholic bride, and the first three years of marriage were rocky, marked by petty rows. The Duke of Buckingham's influence over the king was keenly felt, but when he was assassinated, the couple's love grew strong. During the civil war, Henrietta had to flee to France, never to see her husband again.

True love? Eventually



German painter Franz Xaver Winterhalter captured this revealing portrait of Victoria's family, giving equal prominence to Albert

John Brown would take the queen out riding, but was rumoured to be more than just a servant



Victoria photographed by JE Mayall in 1860

Vicky, an intelligent and precocious child, was the queen's favourite for a time, but it did not mean she would escape a rebuke – even in adulthood. Victoria was upset when Vicky had her first child. But her vitriol was tame in comparison to her words for Albert Edward, who was widely considered her thorn. Bertie, as he was also known, was noted to be a disappointment. "His intellect – alas! is weak which is not his fault but, what is his fault is his shocking laziness," she wrote.

Bertie had a reputation as a playboy prince, which jarred against the straight-laced upbringing that was fostered by Albert. Although Bertie would become king and successfully tour North America and the Indian subcontinent as the prince of Wales, he struggled with his studies, was barred from seeing state papers and was also vetoed from serving in the military.

His series of affairs angered Victoria the most. During a ten-week spell at Curragh Camp in Ireland with the Grenadier Guards in 1861, officers arranged for the Irish actress Nellie Clifden to sleep with him. It appalled his parents and Albert visited his son in Cambridge, where Bertie was studying, in order to discuss the matter. Father and son took a long walk in the pouring rain but Albert returned feeling very ill. He died three weeks later, aged 42, on 7 December 1861 at Windsor Castle. While doctors diagnosed the cause of death as having been typhoid, Victoria blamed their son.

> One of seven attempts on her life, in 1840, Edward Oxford tried to kill Victoria, who was four months pregnant

The queen entered into a period of deep mourning that would last for the remainder of her reign. It was made harder by her mother – with whom she'd reconciled and become close – passing away earlier in the year. Victoria felt very alone and she went into isolation, only this time out of her own free will. Nicknamed the 'widow of Windsor', she divided her time between Windsor Castle, Osborne House and Balmoral Castle, and was forever wearing black. The only time people saw her was during rare public appearances and for official government duties. There's no doubt that the remaining 40 years of her life saw a very different Victoria.

Her stifling refusal to let her children live their own lives intensified. Doctors and servants would be ordered to report back on their progress, according to Ridley. Meanwhile, being cheerful was frowned upon in case it upset the memory of their father. Victoria would emotionally manipulate her children via letters that they would feel compelled to reply to. The queen wanted Alice and her husband Prince Louis of Hesse-Darmstadt to live with her in Britain, and she wanted Helena and her husband to reside at Windsor. Louise's marriage to a subject, Lord Lorne, displeased her, but Beatrice's marriage to Prince Henry Battenberg satisfied the queen as the pair stayed close by.

Victoria also fiercely protected Leopold, a haemophiliac, who she saw as the most intelligent of her sons. She tried to keep him close and objected to him studying at Cambridge. At the same time, she allowed him to be looked after by Archie, the brother of her attendant from Scotland, John Brown. Archie bullied Leopold, but Victoria was said to have ignored it. It is speculated that she allowed this behaviour to continue because of her close relationship with John Brown.

Having lost confidence in her own abilities, she became depressed, but during the 1860s she grew close to Brown, calling him "friend more than servant." He became the queen's Highland Servant in 1865 and his influence on her was so great that Victoria's household began to call her Mrs Brown behind her back.

Victoria had known Brown since 1849 and Albert had liked him. Following the prince's death, it was Brown's job to lead the queen in daily pony rides. She lavished him with gifts, commissioned a portrait of him and did little to wave away the gossip. She would almost certainly have known that the satirical magazine *Punch* was ridiculing him often and that the Swiss newspaper *Gazette de Lausanne* was claiming she had secretly married Brown and even bourne a child by him.

Biographer AN Wilson disputes a pregnancy, though. He believes Victoria and Brown slept in the same bed and hugged, but that was as far as the physical relationship went. He also claims they had a small marriage ceremony at Crathie Kirk in Scotland. Even so, artist Edhar Boehn, who sculpted a head of Brown at Balmoral, said the queen had allowed the man she referred to as "darling" in her letters "every conjugal privilege." When Brown died, in 1883 aged 56, of the skin disease erysipelas, his death crushed her. Victoria wanted to write a biography of him, for he was her rock and confidant if nothing else.

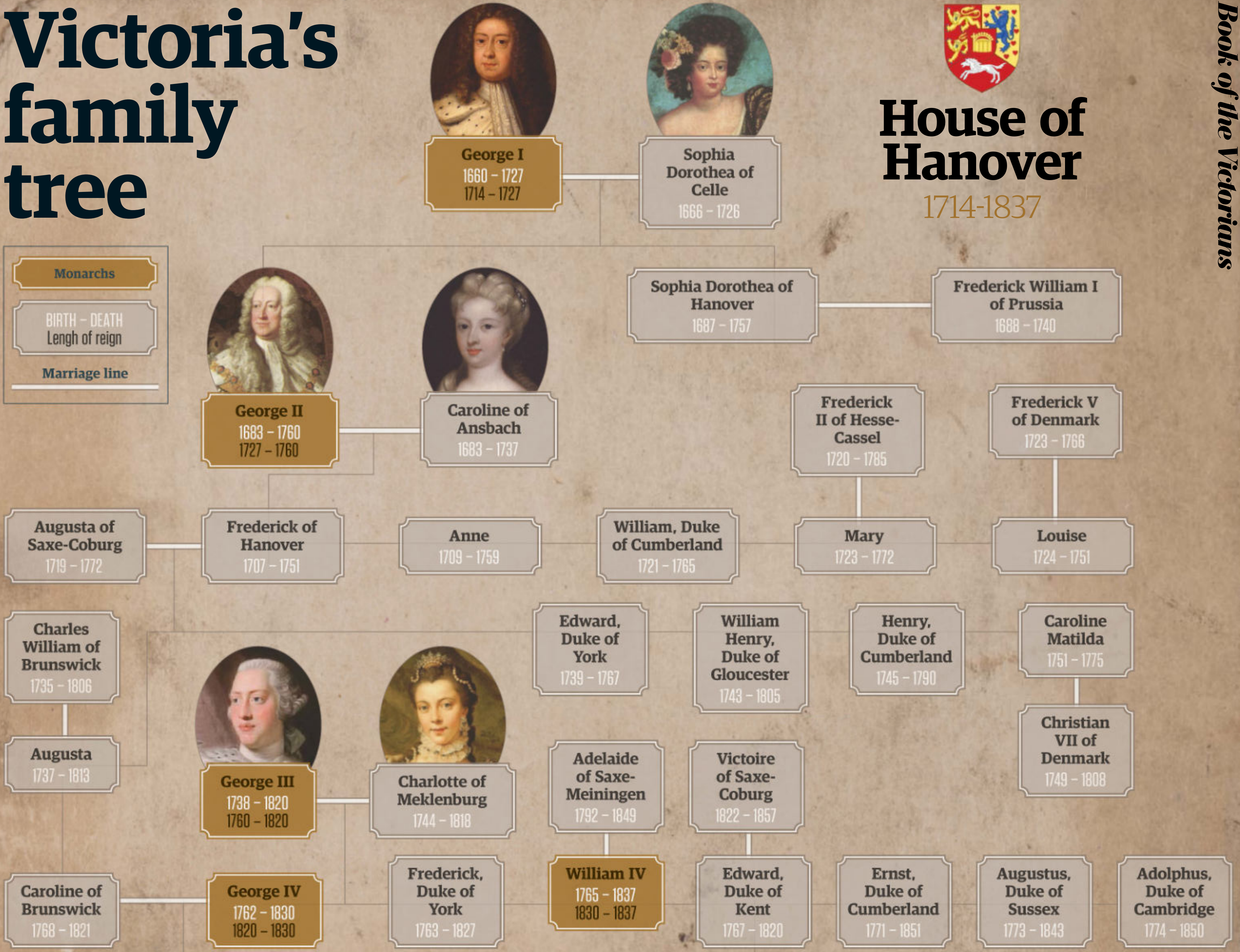
Still, she carried on. Victoria came to have 42 grandchildren (37 of which were born during her life) and – thanks to having family members scattered across the continent – she also became nicknamed 'the grandmother of Europe'. She had achieved plenty, becoming the proud Empress of India and Britain's longest-reigning monarch. She celebrated her Diamond Jubilee in 1896 and, as she become older, the mists of depression began to lift to a small degree.

At the start of 1901, Victoria was ill. Her son Albert Edward and eldest grandson Emperor Wilhelm II of Germany were at her deathbed, and there were signs of love between mother and son. Victoria knew that, at the age of 59, Bertie – King Edward VII – would take to the throne, but she seemed at peace. On 22 January, Victoria died. Now it was time for her country to mourn.

Victoria's family tree

House of Hanover

1714-1837



Monarchs

BIRTH – DEATH
Lengh of reign

Marriage line

George I
1660 – 1727
1714 – 1727

Sophia Dorothea of Celle
1666 – 1726

George II
1683 – 1760
1727 – 1760

Caroline of Ansbach
1683 – 1737

Sophia Dorothea of Hanover
1687 – 1757

Frederick William I of Prussia
1688 – 1740

Frederick II of Hesse-Cassel
1720 – 1785

Frederick V of Denmark
1723 – 1766

Augusta of Saxe-Coburg
1719 – 1772

Frederick of Hanover
1707 – 1751

Anne
1709 – 1759

William, Duke of Cumberland
1721 – 1765

Mary
1723 – 1772

Louise
1724 – 1751

Charles William of Brunswick
1735 – 1806

Edward, Duke of York
1739 – 1767

William Henry, Duke of Gloucester
1743 – 1805

Henry, Duke of Cumberland
1745 – 1790

Caroline Matilda
1751 – 1775

Augusta
1737 – 1813

George III
1738 – 1820
1760 – 1820

Charlotte of Meklenburg
1744 – 1818

Adelaide of Saxe-Meiningen
1792 – 1849

Victoire of Saxe-Coburg
1822 – 1857

Christian VII of Denmark
1749 – 1808

Caroline of Brunswick
1768 – 1821

George IV
1762 – 1830
1820 – 1830

Frederick, Duke of York
1763 – 1827

William IV
1765 – 1837
1830 – 1837

Edward, Duke of Kent
1767 – 1820

Ernst, Duke of Cumberland
1771 – 1851

Augustus, Duke of Sussex
1773 – 1843

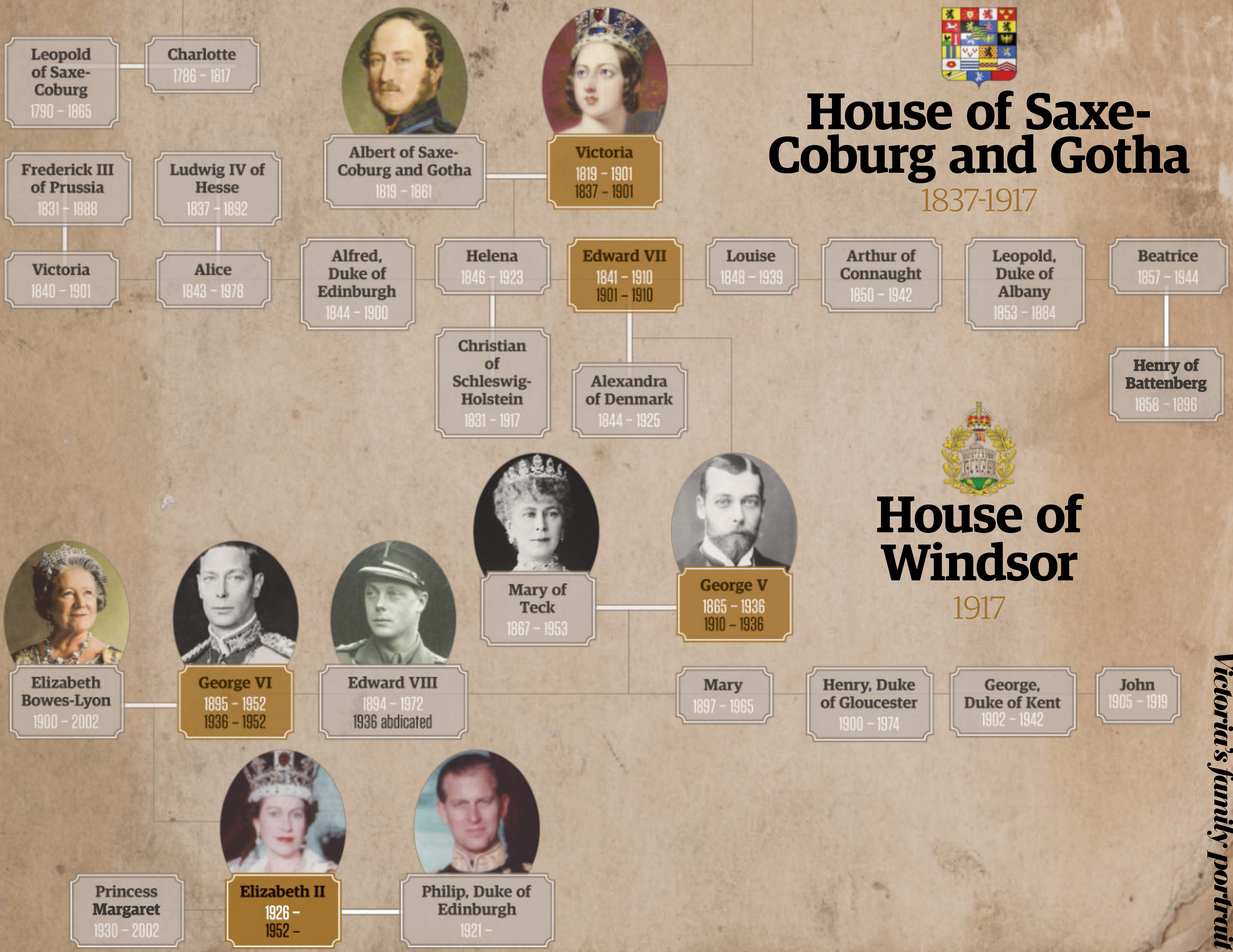
Adolphus, Duke of Cambridge
1774 – 1850

House of Saxe-Coburg and Gotha

1837-1917

House of Windsor

1917


Leopold of Saxe-Coburg 1790 – 1865
Charlotte 1786 – 1817
Albert of Saxe-Coburg and Gotha 1819 – 1861
Victoria 1819 – 1901 1837 – 1901
Frederick III of Prussia 1831 – 1888
Ludwig IV of Hesse 1837 – 1892
Victoria 1840 – 1901
Alice 1843 – 1978
Alfred, Duke of Edinburgh 1844 – 1900
Helena 1846 – 1923
Edward VII 1841 – 1910 1901 – 1910
Louise 1848 – 1939
Arthur of Connaught 1850 – 1942
Leopold, Duke of Albany 1853 – 1884
Beatrice 1857 – 1944
Christian of Schleswig-Holstein 1831 – 1917
Alexandra of Denmark 1844 – 1925
Henry of Battenberg 1858 – 1896
Mary of Teck 1867 – 1953
George V 1865 – 1936 1910 – 1936
Elizabeth Bowes-Lyon 1900 – 2002
George VI 1895 – 1952 1936 – 1952
Edward VIII 1894 – 1972 1936 abdicated
Mary 1897 – 1965
Henry, Duke of Gloucester 1900 – 1974
George, Duke of Kent 1902 – 1942
John 1905 – 1919
Princess Margaret 1930 – 2002
Elizabeth II 1926 – 1952 –
Philip, Duke of Edinburgh 1921 –

The power & influence of Queen Victoria

Far from the passive, politically detached monarch she has been painted as, Victoria was a driving force behind making Britain a leading world power

When Victoria ascended the throne, the monarchy was in a precarious position. Radicalists had grown in strength throughout the 18th and early-19th Centuries, many of them calling for an end to the Crown. Meanwhile in Europe and its colonies, republicanism had taken hold, first with the American Revolution and then with the French. The power of the British monarchy had been in steady decline ever since the Glorious Revolution of 1688, when the Bill of Rights had made clear that the king or queen ruled only with the consent of Parliament. But it was the Reform Crisis of 1830-32, during which Victoria's predecessor William IV refused to pass new reform acts, that caused support to plummet. If the British monarchy was to survive, it would need to be satisfied serving a primarily ceremonial function, with only nominal involvement in state affairs.

So when the king died five years later, few could have imagined a better successor. His niece, Princess Alexandrina Victoria of Kent, was just 18 years old. Slim, fair and fresh-faced, with little knowledge of politics, she bore no resemblance to her domineering uncles, and for that the public loved her.

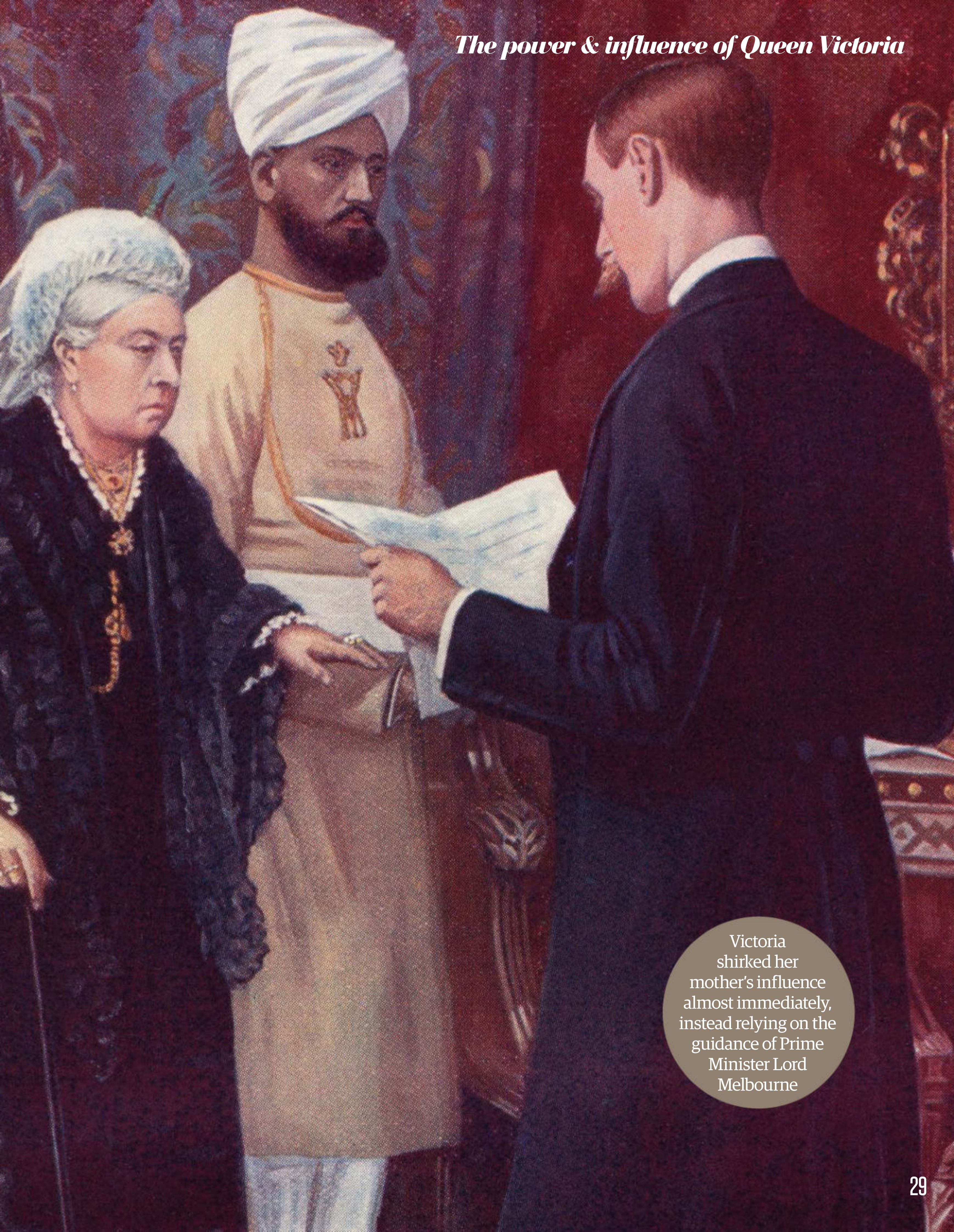
But there was more to this young girl than met the eye. Victoria was quick-witted, practical and, most of all, strong-willed. Within hours of receiving the news of her uncle's death, she had ordered her overbearing mother, the Duchess of Kent, to be moved into an entirely separate suite of apartments. The move had likely been encouraged by Victoria's governess, Baroness Lehzen, who believed that the queen should think independently from her mother and her allies. In response, the Duchess could barely conceal her rage and disappointment, exclaiming, "There is no more future for me." It was the beginning of the end for her influence over the new queen.

During the first few years of Victoria's reign, Lehzen exerted a strong but subtle influence over the queen's private and political affairs. But she was not the only person in court to wield power over the new monarch. Baron Stockmar had been sent to Buckingham Palace by King Leopold I of Belgium, Victoria's uncle, to act as an advisor to the young queen, but he was also an emissary.

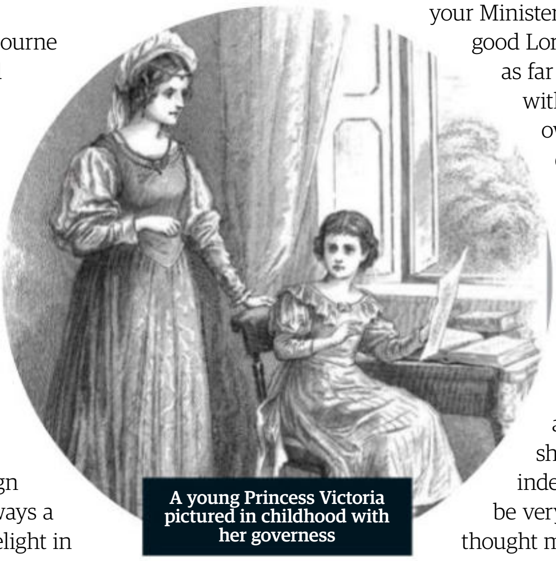
Leopold hoped that through Stockmar he would be able to influence British foreign policy; his country was caught in the middle of Franco-Prussian conflicts and he feared invasion from both sides. He needed the British to support Belgian neutrality by means of a treaty that would promise to protect the country's position should such an invasion occur. Leopold regularly corresponded with the queen, providing her with encouragement, general reflections and gentle advice on foreign policy, while Stockmar became a permanent presence in the palace.

But these three figures of influence paled in comparison one man, who from the very beginning of her reign came to dominate Victoria's life. William Lamb, more commonly known as Lord Melbourne, had been prime minister for three years, and was a man renowned for his calm and

Queen Victoria listening to a dispatch from the front during the Second Boer War



Victoria shirked her mother's influence almost immediately, instead relying on the guidance of Prime Minister Lord Melbourne sensitive temperament, charm and good looks. From the very start he treated her with the utmost respect, and Victoria returned his high favour. When she received Melbourne the day after her uncle's death, she told him that it had long been her intention to retain both him and his Whig government, and that the country "could not be in better hands".

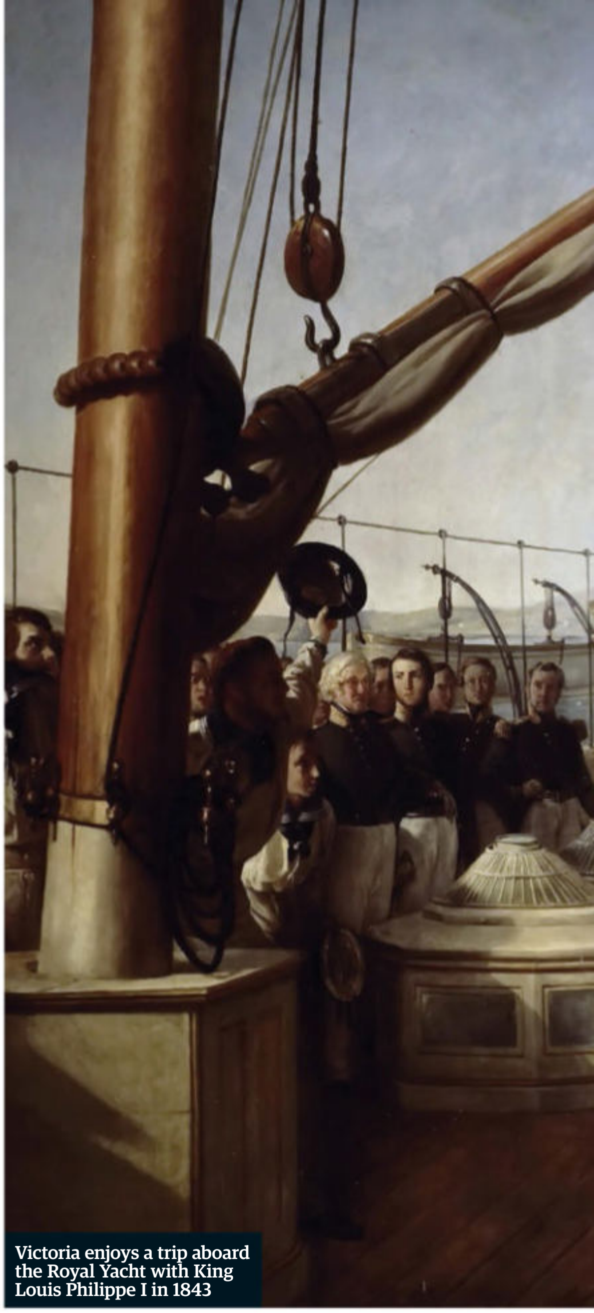


A young Princess Victoria pictured in childhood with her governess

As time went on, Melbourne became her most trusted advisor, and his manner towards her combined the watchfulness and respect of a statesman with the tender care of a parent. He regularly informed her of the goings-on in Parliament, and she wrote: "I have so many communications from the Ministers, and from me to them, and I get so many papers to sign every day, that I have always a very great deal to do. I delight in this work."

Meanwhile, King Leopold's correspondence had become more frequent and insistent than ever. The situation in Europe was worsening and he believed it was vital that England expressed its support; to not be with Belgium was, he believed, to be against it. Maybe by putting a little pressure on Victoria he could persuade England to sign a treaty. He wrote: "All I want from your kind Majesty is that you will occasionally express to your Ministers, and particularly to good Lord Melbourne, that, as far as it is compatible with the interests of your own dominions, you do not wish that your Government should take the lead in such measures as might in a short time bring on the destruction of this country, as well as that of your uncle and his family." After a week of reflection, she replied: 'It would, indeed, my dearest Uncle, be very wrong of you, if you thought my feelings of warm and devoted attachment to you, and of great affection for you, could be changed - nothing can ever change them." Her references

> "Melbourne became her most trusted advisor, and his manner towards Victoria combined the respect of a statesman with the tender care of a parent"

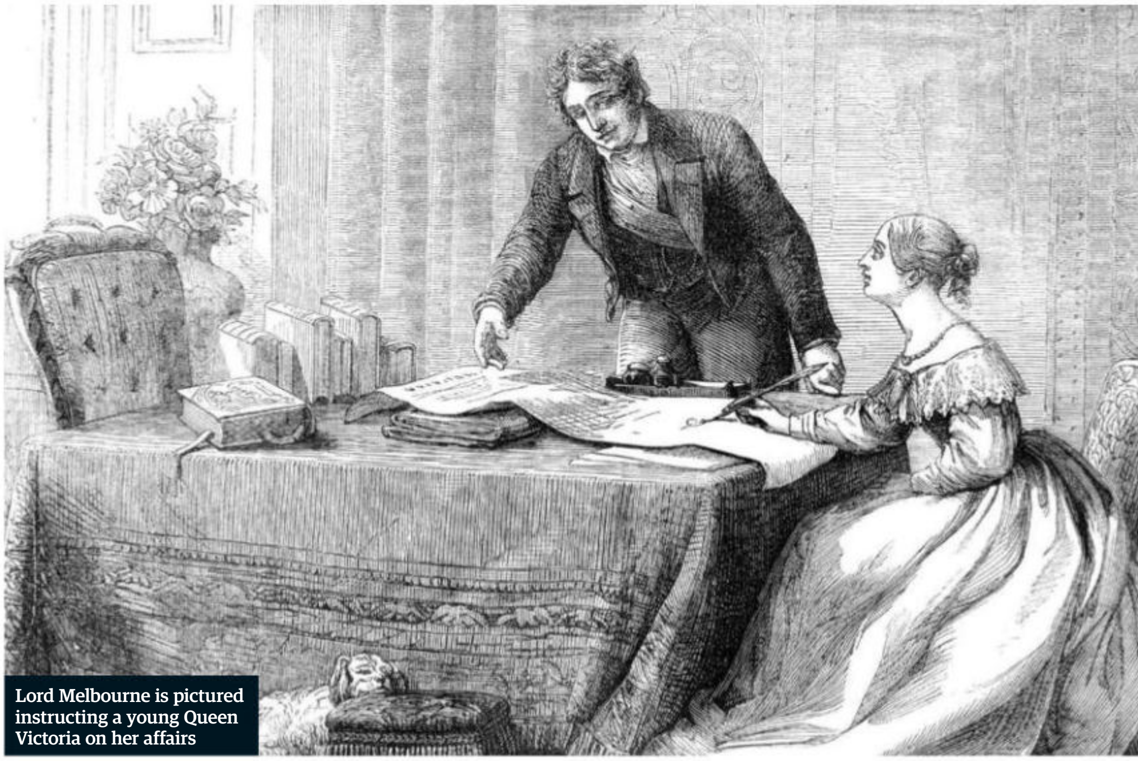


Victoria enjoys a trip aboard the Royal Yacht with King Louis Philippe I in 1843

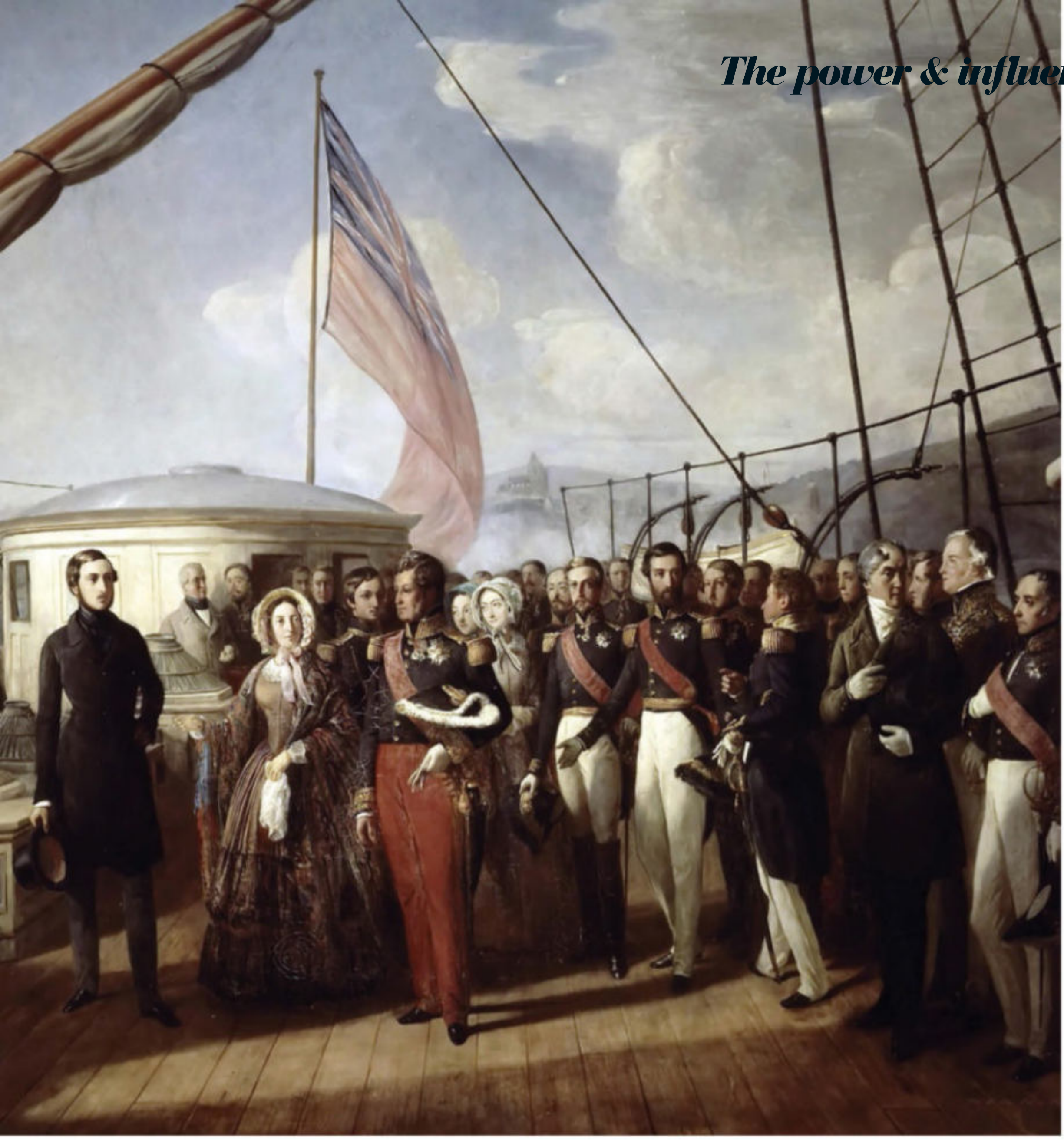
The grandmother of Europe

Victoria's desire to be involved in every aspect of her children's lives has been interpreted by many as the indicator of an overbearing mother. But in fact, her intention was as much to ensure the security of her country as it was to ensure the success of her heirs. By marrying her nine children into royal families across Europe, she was able to establish strong bonds with those nations, providing ample leverage in times of trouble.

Victoria, Princess Royal → Frederick, Crown Prince of Germany and Prussia
Prince Albert → Princess Alexandra of Denmark
Princess Alice → Grand Duke of Hesse
Prince Alfred → Russian Grand Duchess Maria Alexandrovna
Prince Arthur → Princess Louise Margaret of Prussia
Princess Beatrice → Prince Henry of Battenberg



Lord Melbourne is pictured instructing a young Queen Victoria on her affairs



to foreign politics, though lengthy and elaborate, were decidedly non-committal, and simply assured her uncle that "both Lord Melbourne and Lord Palmerston are most anxious at all times for the prosperity and welfare of Belgium."

Despite this, a few months later, Leopold wrote once again urging for the support of her government. She replied: "My dear Uncle, though you seem not to dislike my political sparks, I think it is better not to increase them, as they might finally take fire, particularly as I see with regret that upon this one subject we cannot agree. I shall, therefore, limit myself to my expressions of very sincere wishes for the welfare and prosperity of Belgium." The conversation was over, and Victoria had demonstrated that the foreign policy of England was not his province. This was even more impressive given the respectfulness and affection she had maintained throughout the exchange. It was a soft power that had rarely been seen before.

Victoria's public support took a turn for the worse when, in 1839, she accused Lady Flora Hastings – her mother's lady-in-waiting – of having an affair with Sir John Conroy, her mother's comptroller. This arose from rumours of Lady Flora's changing figure, which were proved wrong when she died a few months later of a cancerous tumour. Victoria expressed her regret, but failed to dismiss Sir James. The public were outraged, and the popularity with which she had begun her reign quickly ebbed away.

Her situation worsened when she heard news that Lord Melbourne and his Whig government were to resign following to a dispute in the House of Commons. She was asked to summon the Tory leader, Sir Robert Peel – a man whom Victoria disliked immensely. When he tentatively asked for some of her Whig ladies-in-waiting to be replaced with Tories, she refused. The dispute that unravelled would come to be known as The Bedchamber Crisis. Peel refused to form a government and Lord Melbourne remained prime minister. The queen had won, but the hearts of the British had been lost.

It was shortly after The Bedchamber Crisis that Victoria's German cousin, Prince Albert, arrived at Windsor. Unbeknownst to her, the wheels that had been polished and primed for so long were set in motion. The queen immediately fell for her handsome European relative, and within days she had asked for his hand in marriage. He gladly accepted and wedding plans commenced.

Friend or foe?

Victoria's relationships with her prime ministers ranged from mutual adoration to loathing

Hot

Lord Melbourne

1834 • Apr 1835 – Aug 1841

The Whig Melbourne was home secretary from 1830 until he replaced Lord Grey as prime minister in 1834. He became a mentor to the young and newly crowned Victoria, who said she loved him "like a father".

Benjamin Disraeli

Feb 1868 – Dec 1868 • Feb 1874 – Apr 1880

Disraeli was pivotal in the creation of the Conservative party. Upon first securing power in 1868, he set out to woo and flatter the queen. In turn, Victoria deeply admired and appreciated him.

Sir Robert Peel

Aug 1841 – Jun 1846

The pair got off to a bad start when the newly elected Tory PM asked Victoria to make some changes to her household, in which most of her ladies were Whigs. In later years their relationship did improve, however.

Lord John Russell

Jun 1846 – Feb 1852 • Oct 1865 – Jun 1866

Victoria's attitude towards the Whig/Liberal Lord Russell was tainted by her close friend Lord Aberdeen, PM between 1852 and 1855, who blamed Russell for the collapse of his government.

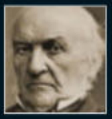
Lord Palmerston

Feb 1855 – Feb 1858 • Jun 1859 – Oct 1865

Another relationship that started badly, then foreign minister Palmerston ruffled royal feathers when he sent a private note congratulating French president Louis Bonaparte on his coup.

William Gladstone

Served four terms between 1868 and 1894. His first term lasted from 1868-1874.



Disraeli's great rival, Gladstone served as Liberal PM four times, yet never won the affection offered by the queen to his opposition. She described him as a "mischievous firebrand, arrogant, tyrannical and obstinate".

Cold

But again, the Tories stepped in to burst her bubble of happiness when they refused to grant Albert the £50,000 annual settlement that Victoria had requested for him. They reminded her that the majority of the population were suffering from extreme poverty, so a sum of £30,000 would be more than adequate. The queen was fuming, and swore not to invite a single Tory to her wedding.

Even after marriage, the prince failed to gain any sort of power, either in Parliament or indeed his own household. In the palace, Baroness Lehzen was the dominant force; she remained Victoria's closest advisor, retaining a private doorway into the royal bedroom, and Albert detested her for it. The birth of their first child, Victoria, Princess Royal, helped his position, and when the child became seriously ill under the watch of Lehzen, he insisted that she be dismissed. Reluctantly, Victoria agreed. The arrival of the children also helped to rebuild the queen's reputation. The couple regularly commissioned paintings of their family in intimate settings, giving the public the impression that they were just like them. Victoria came to be an icon of 19th Century femininity and was described as the 'mother of the nation'.

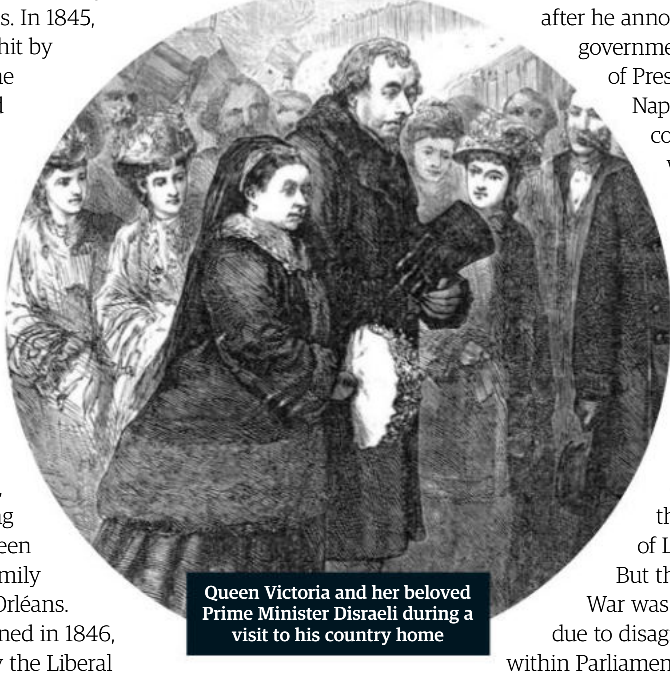
In 1841 the Tories came to power under Sir Robert Peel, and Albert persuaded the queen to take a less hostile view of her new prime minister. Finding Peel to be not dissimilar to himself, Albert began to take a more active role in politics. In the ministerial crises of 1845 and 1846, the prince played a dominating part. Everybody recognised that he was the real centre of the negotiations, the actual controller of the forces and the functions of the Crown. By the end of Peel's administration, Albert had become, in effect, the King of England.

Victoria, too, strove to influence domestic and foreign policy from the 1840s on, intervening when necessary. Although she never vetoed legislation or contested election results, she made clear that she was ambivalent about democracy, and informed her ministers when she disagreed with their decisions. In 1845, when Ireland was hit by a potato famine, she personally donated £2,000 to famine relief – more than any other individual donor. She became known as the 'Famine Queen'. Internationally, she took a keen interest in improving relations between France and Britain, making and hosting several visits between the British royal family and the House of Orléans.

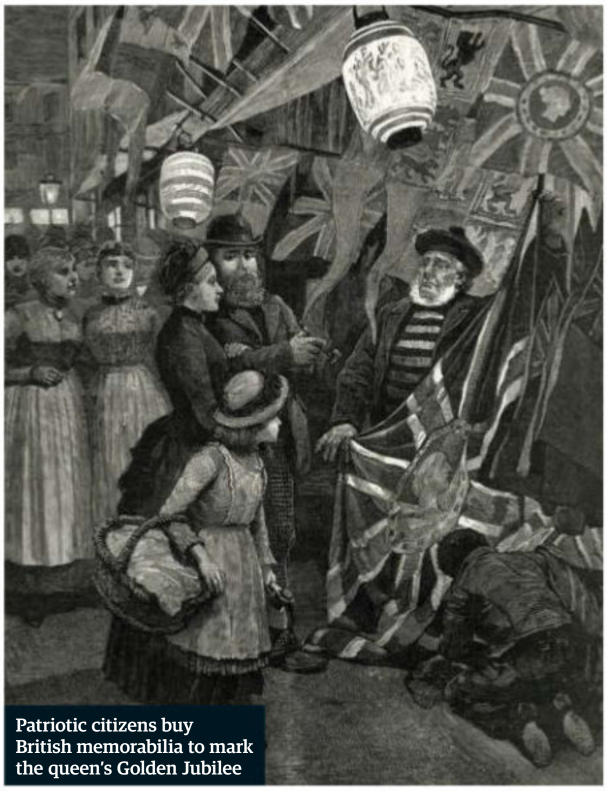
When Peel resigned in 1846, he was replaced by the Liberal Lord John Russell. Victoria found him to be stubborn, opinionated and graceless. But worse than this, he either could not or would not curb the impudence of his foreign minister, Lord Palmerston. Many important Foreign Office despatches were either submitted to the queen so late that there was no time to correct them, or they were not submitted to her at all. Even if she was given a chance to see them in time, they were sent off in their original form, regardless of whether changes had been suggested. Victoria demanded on several occasions for his dismissal, but her requests fell on deaf ears. It wasn't until 1851, after he announced the British government's approval of President Louis-Napoleon Bonaparte's coup in France, without informing or consulting the prime minister, that he was finally removed.

However, less than a year later Palmerston was back in the cabinet under the leadership of Lord Aberdeen. But the Crimean War was brewing, and due to disagreements within Parliament he resigned.

The public was furious. They had been reassured that this man would lead them through the terrible war, and now he was gone. They desperately sought someone to blame, and they found him sitting on the throne – a foreigner in one of Britain's highest positions of power. Albert was declared a traitor, and a constitutional crisis

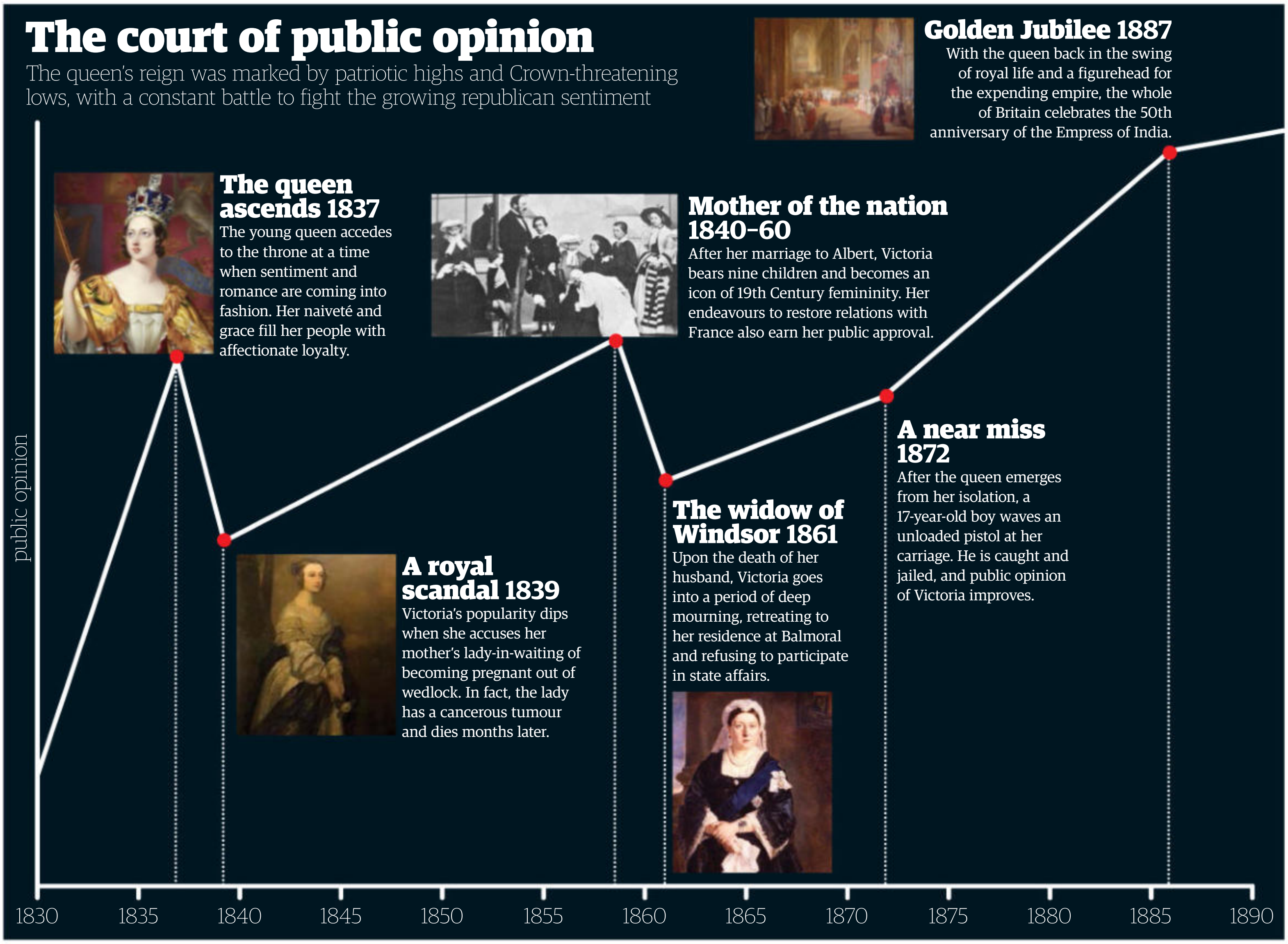


Queen Victoria and her beloved Prime Minister Disraeli during a visit to his country home



Patriotic citizens buy British memorabilia to mark the queen's Golden Jubilee

Thousands line the streets to watch the royal procession during the Golden Jubilee



The court of public opinion

The queen's reign was marked by patriotic highs and Crown-threatening lows, with a constant battle to fight the growing republican sentiment

The queen ascends 1837
The young queen accedes to the throne at a time when sentiment and romance are coming into fashion. Her naiveté and grace fill her people with affectionate loyalty.

A royal scandal 1839
Victoria's popularity dips when she accuses her mother's lady-in-waiting of becoming pregnant out of wedlock. In fact, the lady has a cancerous tumour and dies months later.

Mother of the nation 1840-60
After her marriage to Albert, Victoria bears nine children and becomes an icon of 19th Century femininity. Her endeavours to restore relations with France also earn her public approval.

The widow of Windsor 1861
Upon the death of her husband, Victoria goes into a period of deep mourning, retreating to her residence at Balmoral and refusing to participate in state affairs.

A near miss 1872
After the queen emerges from her isolation, a 17-year-old boy waves an unloaded pistol at her carriage. He is caught and jailed, and public opinion of Victoria improves.

Golden Jubilee 1887
With the queen back in the swing of royal life and a figurehead for the expending empire, the whole of Britain celebrates the 50th anniversary of the Empress of India.

ensued. Whispers circulated that the prince had been seized, found guilty of high treason and was to be taken to the Tower of London. The queen herself, some declared, had been arrested, and large crowds actually gathered at the Tower to watch their imprisonment. Palmerston eventually returned to cabinet and, in 1855, Victoria was forced to appoint him prime minister, considered to be the only man capable of leading Britain to victory.

Contrary to the queen's expectations, she and Albert agreed that of all her prime ministers, Palmerston gave her the least trouble. It was fortunate that the his temperament had mellowed, for it was he who had to deal with the queen when Albert passed away unexpectedly in December 1861. Victoria was inconsolable and vowed to withdraw from all affairs of state.

> "Following Albert's death in 1861, Victoria was inconsolable and vowed to withdraw from all affairs of state"

She told Palmerston that he would have to conduct his business through one of her daughters, or her private secretary. When Palmerston urged that this was impossible, they came to a strange compromise. It was agreed that at privy council meetings the queen would sit in the next room with the door between them open, and would then authorise the clerk to give her assent to the matters laid before the councillors for their approval.

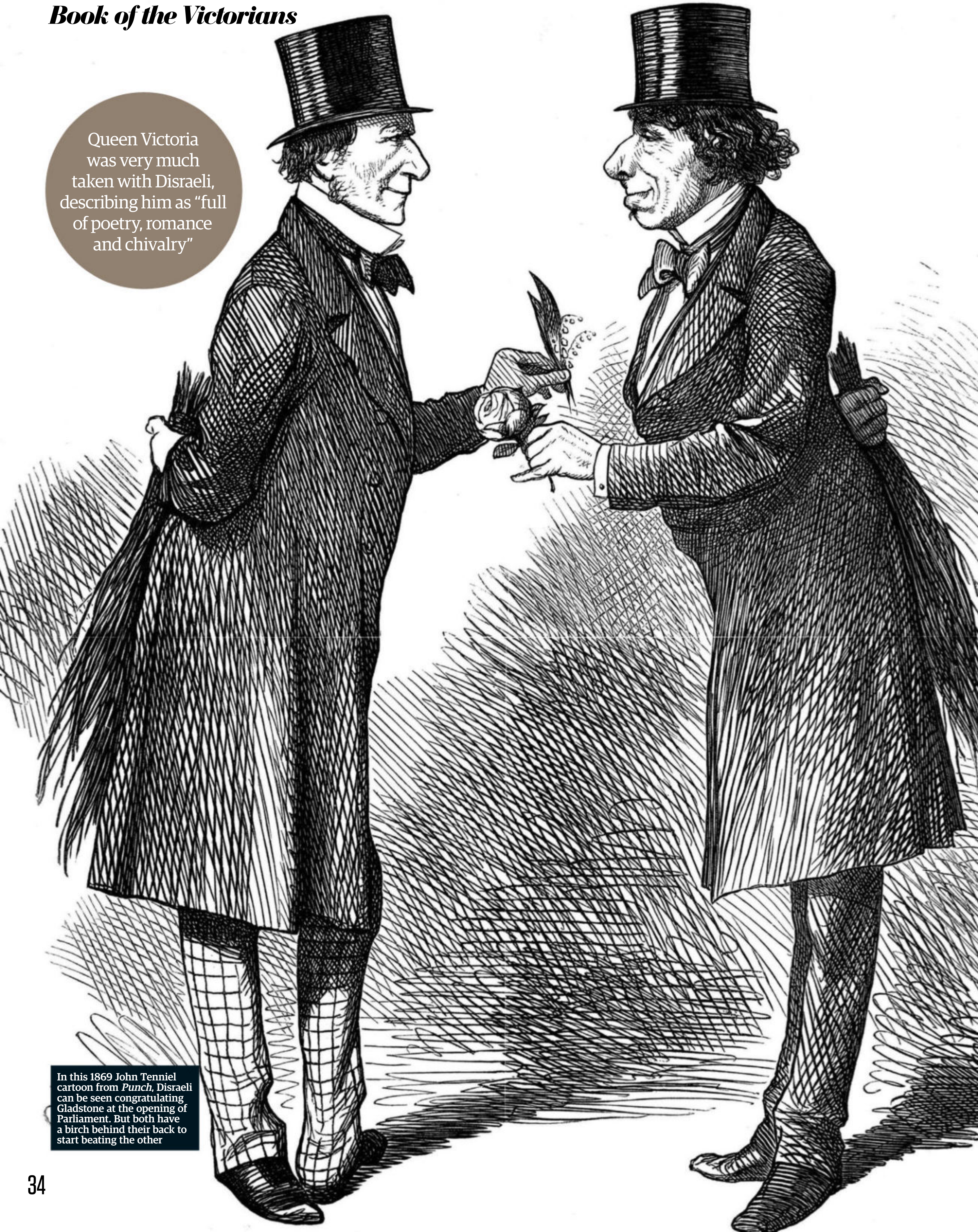
As time went by, she slowly got back into the stride of state affairs, pushing for the construction of the South Kensington museums, participating in discussions about army reform, and cheering on the expansion of the Empire. She was also deeply interested in relations with Prussia, and cautioned her ministers against waging war against it.

When Conservative Benjamin Disraeli became prime minister in 1868, and again in 1874, he formed a close bond with the queen. For the next six years, the duo would exploit their closeness for mutual advantage. Victoria had long wished to have an imperial title that reflected Britain's increased stature in the world. The title 'Empress of India' had been used informally with regard to Victoria, and Disraeli succeeded in passing the Royal Titles Bill through the House of Commons. Though the Representation of the People Act of 1884 helped to give the Commons the upper hand, in the colonies the sovereign remained a powerful figure, with many believing that it was the 'Great White Queen' who controlled their fates.

Victoria's relationship with Disraeli's rival, the Liberal William Gladstone, was stony. He was prime minister four times between 1868 and 1894. Her final prime minister, the Tory Lord Salisbury, was much more amenable, and upon her death in 1901 he credited her for the country's rising wealth, civic order and the growth of the Empire. As the queen had so firmly believed, the prime minister was merely the 'temporary head of the cabinet', while the monarch was the 'permanent premier'. It was a belief that, in the years following her reign, the monarchy would be forced to abandon.

© Alamy, Getty

Queen Victoria was very much taken with Disraeli, describing him as "full of poetry, romance and chivalry"



In this 1869 John Tenniel cartoon from *Punch*, Disraeli can be seen congratulating Gladstone at the opening of Parliament. But both have a birch behind their back to start beating the other

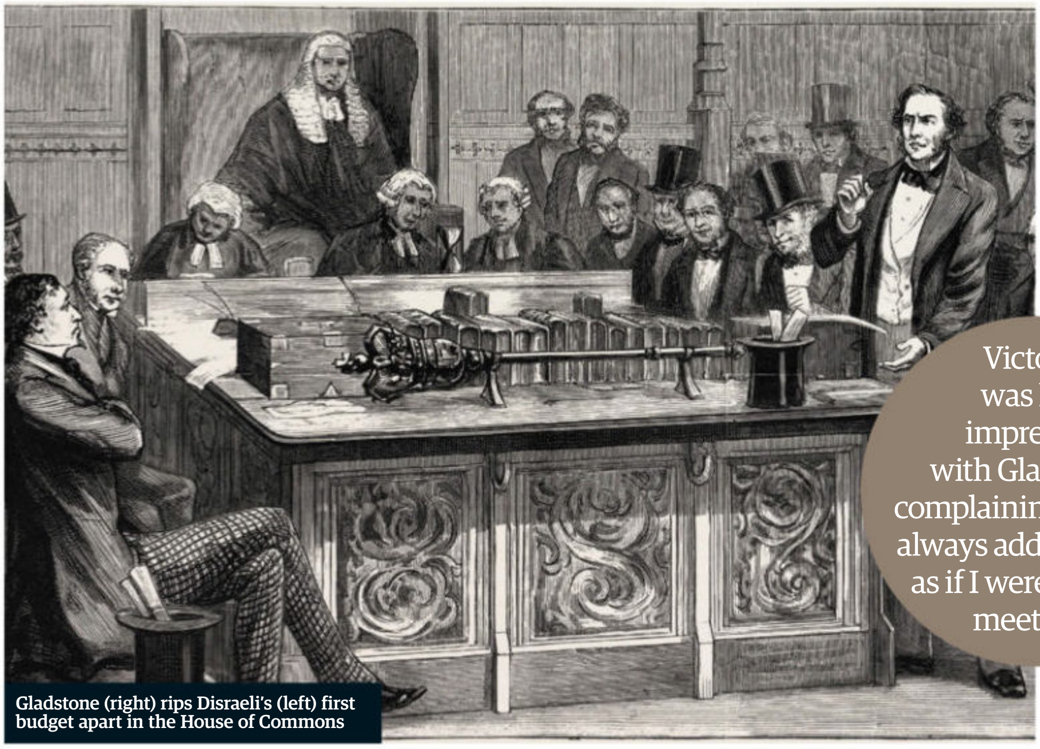
Disraeli vs Gladstone

Besides Albert, Victoria shared her life with ten other men – her prime ministers. Famous among the bunch, Gladstone and Disraeli tore apart her House of Commons thanks to their bitter rivalry

From the very second they first met, they despised one another. Benjamin Disraeli (21 December 1804 – 19 April 1881) was a dilettante with gentlemanly pretensions, an author of critically mauled romantic fiction, and dinner party dandy who fancied himself as a politician. William Gladstone (29 December 1809 – 19 May 1898) was a man of insufferable purpose, pious, abrasive, self-righteous and regarded as a 'prig' by those who knew him.

If the fey and theatrical Disraeli was an irresistible force, then the stony-faced Gladstone was the immovable object, and over the next 40 years their feud, from simmering resentment to all-out warfare, would change the shape of Britain and its Parliament irreversibly. No contemporary political spat has yet to reach the ferocity of Gladstone versus Disraeli.

"Their feud, from simmering resentment to all-out warfare, would change the shape of Britain and its Parliament"



Gladstone (right) rips Disraeli's (left) first budget apart in the House of Commons

Victoria was less impressed with Gladstone, complaining that "he always addresses me as if I were a public meeting"

While their first encounter – a gathering on 17 January 1835 where parliamentarian-to-be Disraeli was being introduced to the Conservative Party's movers and shakers, including rising star William Gladstone – produced more dismissive asides (Disraeli wrote that the most interesting person there was a swan stuffed with truffles, while Gladstone raised an eyebrow at Disraeli's outlandish attire) than sparks, their second would leave scars that set them at odds until death.

In the General Election of 1841, Sir Robert Peel – of Metropolitan Police-founding fame – became prime minister for a second time, rewarding Gladstone with the role of president of the board of trade. Disraeli was left empty handed, and opined to his wife that "all is lost."

Disraeli had his vengeance in 1845, when Peel decided to repeal the Corn Laws in the wake of famine in Ireland. This particular set of laws protected British crops by taxing imports more heavily, giving land-owning Tories a competitive advantage, but in Peel's mind the need to avoid civil unrest across the Irish Sea outweighed the bank balance of his fellow Conservatives.

There's no evidence that Disraeli cared particularly for the Corn Laws – after all he was a metropolitan son of a writer who probably wouldn't know a field of wheat from a field of daffodils – but the fault lines that opened up through the party were ripe for exploitation and Dizzy, as he'd become known, eviscerated the prime minister in the House of Commons, tearing chunks out of his authority. The Corn Laws were successfully repealed, but Disraeli's mischief left Peel profoundly humiliated. Surrounded by his loyalists, Gladstone included, he left the party he founded, bringing the Tory government crashing down.

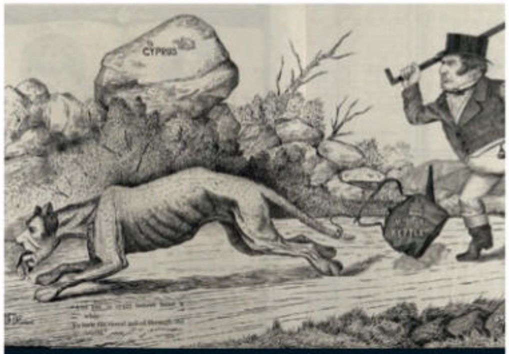
The Conservatives desperately tried to woo the 'Peelites' back to the cause, and Gladstone was no exception. He, however, refused, thinking Dizzy's actions beyond the pale, and retired from frontline politics to brood in his country manor. Left with a party of unimpressive back-bench MPs, new Conservative leader Edward Stanley, 15th Earl of Derby, was forced to rely on Disraeli as the sharpest mind and the only first rate speaker he could draw on. The Conservatives returned to government in 1852 with Disraeli as chancellor of the exchequer, an appointment that brought Gladstone storming out of his self-imposed exile like a rage-fuelled rocket.

Gladstone took to wandering the streets of London 'rescuing' prostitutes by encouraging them to change their ways

Disraeli's budget was as shambolic as to be expected from a man who became a novelist solely to fend off his crushing debts, but he was witty, playing to the roaring backbenchers with attacks on the opposition. "Argument, satire, sarcasm, invective," wrote MP John Bright. "All were abundant and of the first class."

The Commons was scheduled to break, but Gladstone forced his way to the dispatch box and unleashed a verbal torrent "to show the Conservative Party how their leader is bewildering and hoodwinking them." He ripped Disraeli's flimsy grasp of economics to shreds, while establishing himself as a fiscally sound contender for the office. The budget was rejected by 19 votes; Derby's Conservative government was brought down with it. "To smash an antagonist in the House of Commons," Gladstone – a surprising ladies' man – admitted to one female admirer, "is sometimes not disagreeable."

A new party, the centre-left Liberals, were formed out of the assorted Peelites, Whigs and Radicals in opposition, and took government with Gladstone as chancellor. This was payback for Peel's Corn Laws humiliation, but Gladstone refused to leave it at that.



Galdstone chasing a dog with Disraeli's face, courtesy of the Wellcome Trust

It was tradition for the incoming chancellor to pay the outgoing chancellor a tidy sum to cover the loss of furniture at 11 Downing Street, but Gladstone simply refused out of sheer bloodymindedness. Disraeli met spite with spite and refused to hand over the ceremonial robes of chancellor, taking them home with him instead.

In contrast to his predecessor, Gladstone was a great chancellor. Nicknamed 'The People's William', he had earned enormous popularity from the common man by reducing taxes on imports, knocking down the price of bread, and the tax on newspapers, scathingly referred to as 'the tax on knowledge'. Yet even when he stepped down from the front bench following a scandal, Disraeli worked up some mischief to remove him from the centre of power altogether by having an acquaintance suggest that he would make a perfect high commissioner for troublesome Corfu, then railing against British rule.

Gladstone didn't quite have his adversary's Machiavellian streak for the political doublecross, and it was only when Queen Victoria actually granted him his new commission that he realised it would mean leaving the House of Commons far behind. It took intervention from one of Gladstone's mentors – Lord Aberdeen – to extract him from his Greek island mousetrap and smooth things over with the monarch. But Gladstone had to rebuild his career from scratch. Touring England's cities – the first time a politician had done such a thing – he gave speech after speech to vast crowds. He may not have been able to spot a flimsy ruse, but he was far more accomplished at catching the popular mood than his nemesis.

Despite his own reservations, in 1864 he campaigned on a platform to widen the vote – a stance so controversial he lost his seat in well-to-do Oxford, and instead he stood for the staunchly working-class seat of South Lancashire. Taking on the mantle of outsider and reformer, Gladstone addressed 6,000 people in Manchester. The room was electrified. "At last, dear friends," he roared across the Free Trade Hall, "I am come among you, and I am come… unmuzzled."

The Jewishness of Disraeli

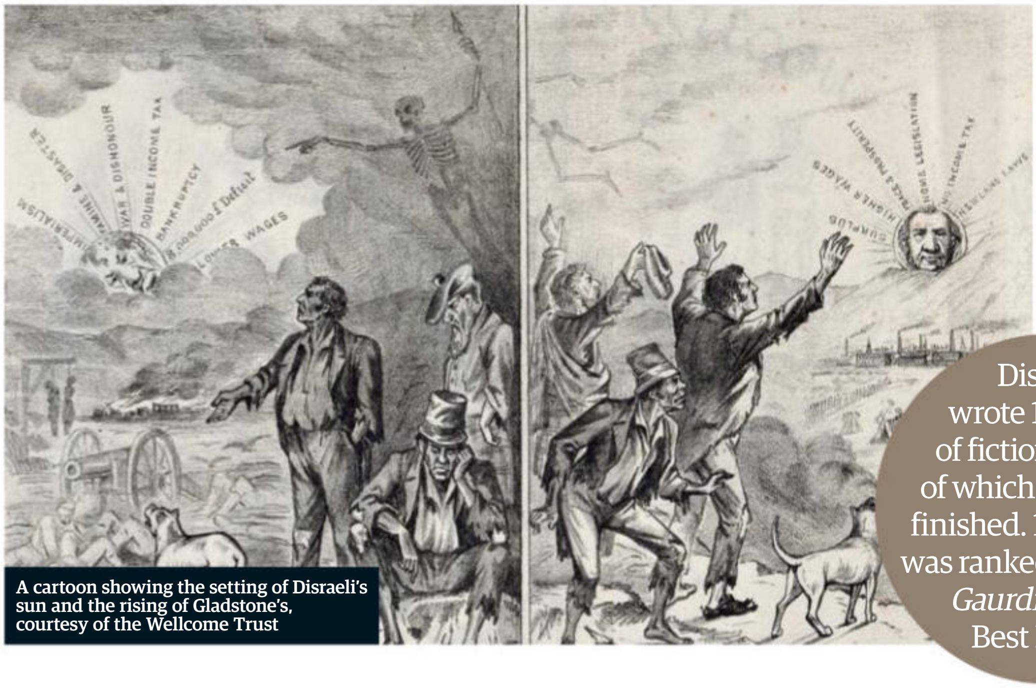
How Disraeli beat discrimination and honoured his roots

Born to Isaac and Maria D'Israeli, Sephardic Jews with roots in Italy, young Benjamin (who later dropped the apostrophe from his surname) converted to Christianity aged 12 after his father had a falling out with his synagogue. However, anti-Semitism remained part of the background hum of his life, making his ascension of high office even more remarkable.

At one of his very first political events, someone mounted a piece of pork on a stick and wafted it under his nose. Disraeli, to his credit, didn't even flinch. This level of discourse was later adopted by Gladstone, taunting "Ben the Jew, leader of the Tory crew" and claiming "he was holding British foreign policy hostage to his Jewish sympathies."

At the time of Disraeli entering the Commons, only Christians could become MPs. Although he was Christian by faith if not birth, he doggedly fought to remove the 'Jew Bill' so that his friend Baron Lionel de Rothschild could stand. The bill was opposed with such bile that when passed, Rothschild refused to take his seat.

Despite the steady stream of bigotry, Disraeli remained proud of his heritage – snapping back to one critic that "when the ancestors of the right honourable gentleman were brutal savages in an unknown island, mine were priests in the temple of Solomon" – and mischievously said of Christian veneration of Mary and Jesus that "half of Christendom worships a Jewess, and the other half a Jew."



A cartoon showing the setting of Disraeli's sun and the rising of Gladstone's, courtesy of the Wellcome Trust

Disraeli wrote 18 works of fiction, the last of which was never finished. 1847's *Sybil* was ranked 11th in *The Gaurdian*'s 100 Best Novels

Disraeli naturally destroyed Gladstone's attempt to get voting reform passed, but he was joined in his efforts not just by Conservatives, but also by many Liberals who, on this occasion, weren't so liberal after all. Yet another government fell as a result, and the incoming Tory administration pulled the rug right out from under their opponents when Disraeli audaciously presented a voting bill that was even more far reaching than the one he'd previously fought tooth and nail to overturn.

Before the Representation of the People Act 1867, only 1 million of Britain's 7 million adult men were able to vote – anyone earning more than 26 shillings a week could do so, which restricted the vote to the middle classes – and after it had been passed, that number doubled to include anyone who paid rates on their property.

Derby stood down due to ill health in 1868, and Disraeli ascended to the highest elected office in the land. Once again, Gladstone paid back his earlier humiliation, leading the opposition in voting down the minority Tory government at every turn. Disraeli called a General Election, hoping to increase his majority, and the electorate called his bluff. Finally, the many in the working class could vote, and they rewarded not the cynical author of their voting rights, but its original architect; Gladstone replaced Disraeli as prime minister.

Gladstone was prime minister three more times and Disraeli twice, their bitter duel continuing at its breathless pace for a further 13 years.

Gladstone's reforms ended the buying and selling of ranks in the army, allowed religious dissenters to enter university and introduced exams for civil servants to end nepotism and patronage. Disraeli in turn expanded the British Empire, bestowing its monarch with the title Empress of India, and put Britain at the heart of European politics. Gladstone brought him low over controversial, and disastrous, wars in Afghanistan and South Africa, while Disraeli kicked the stocks out of the Liberals' working class support base by pushing bolder social reform than ever before.

Truly, they were titans, their portraits still glaring across from one another at 11 Downing Street, and their statues still locked in a silent battle within the stone walls of London's Westminster Abbey.

To political history, they left bitterly adversarial Punch & Judy pitched battles across the dispatch box and town hall-rattling grass roots electioneering that still defines Britain's political system. But to the history of Britain, locked in a four-decade battle to outdo each other, they unleashed reforms that recast the country for the 20th Century, opening the doors of democracy ever wider, eroding the rigid class system and laying the foundations of modern meritocracy.

"He was essentially a prig," recalled Disraeli of his rival, "and among prigs there is a freemasonry that never fails. All the prigs spoke of him as the coming man." When Disraeli died in 1881, Gladstone refused to attend his funeral. "As he lived, so he died" wrote the prig in his diary. "All display without any reality of genuineness."

> "They unleashed reforms that recast the country for the 20th Century"

Liberals vs Conservatives

Origins and legacy

Founded in 1859 from a patchwork of Conservative MPs loyal to former Prime Minister Robert Peel and members of the older Whig and Radical factions of Parliament, the Liberal Party was eventually dissolved in 1988 and merged with the Social Democratic Party to form the Liberal Democrats.

Beginning life as a breakaway faction of the royalist Whigs (nicknamed 'Tories'), the Conservative Party was officially formed in 1834 by Sir Robert Peel around the defence of the Crown, the Church of England and the House of Lords. The party continues today under the same name.

Supporters

As reformists, the Liberal Party attracted a broad church of support from those who either felt underrepresented in the Commons or wanted to see huge changes in economic and political life, ranging from the working class to the middle class and from wealthy industrialists to Irish Catholics.

The Conservative Party's traditional supporters – like the Whigs before them – were the aristocracy, rural landowners and Anglican clergy, but as voting laws changed, Sir Robert Peel and successive leaders, including Disraeli, tried to win over the growing middle classes with social reforms.

Empire

The Liberal Party opposed using military force abroad and largely saw the British Empire as an expensive folly, but the realities of being a superpower couldn't be avoided. Nonetheless, the Liberals tried to enforce the rule of law in Europe and voted against the bill to anoint Queen Victoria Empress of India.

The party of empire, the Conservatives supported expansion across the globe, with mixed results. They took ownership of the Suez Canal and awarded Queen Victoria the title of empress, but also presided over the disastrous Anglo-Afghan War and British defeats against the Zulus.

Ireland

Though the party was split on Irish Home Rule, the Liberals came to power in 1868 under the slogan "justice for Ireland". While in government, they promptly increased the rights of tenant farmers, removed the unfair privileges of the Anglican Church in Ireland and granted the vote to peasants.

Opposed to Home Rule as a threat to the Union, the Conservative Party was naturally aligned with Ireland's rich landowners, many of whom lived in England, and the Anglican Church in Ireland, which had disproportionate influence and wealth in an island that was mostly Roman Catholic and Presbyterian.

Economy

The Liberal Party was dedicated to low taxes, as little state intervention into the economy as possible and, most importantly, free trade. By removing import duty on all but a small number of luxury items, the Liberals stimulated economic growth and increased the availability of consumer goods to the working class.

Traditionally favouring protectionism as it gave British production – owned by Tory MPs or Tory supporters – a clear advantage, the party voted against their own leader when he attempted to repeal the Corn Laws, which would have brought in more competition and hit their profits hard.

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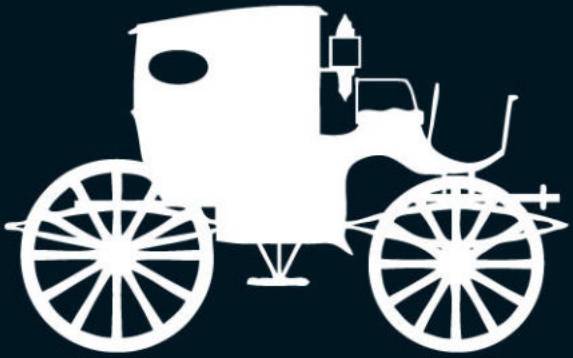


INDUSTRIAL REVOLUTION

The second phase of the Industrial Revolution was a technological revolution, which saw inventive spirit soar and industry flourish

40 Industrial Revolution timeline
Understand the context of the events that transformed British industry

42 Age of industry
Explore the industries that underwent a renaissance thanks to evolving technologies

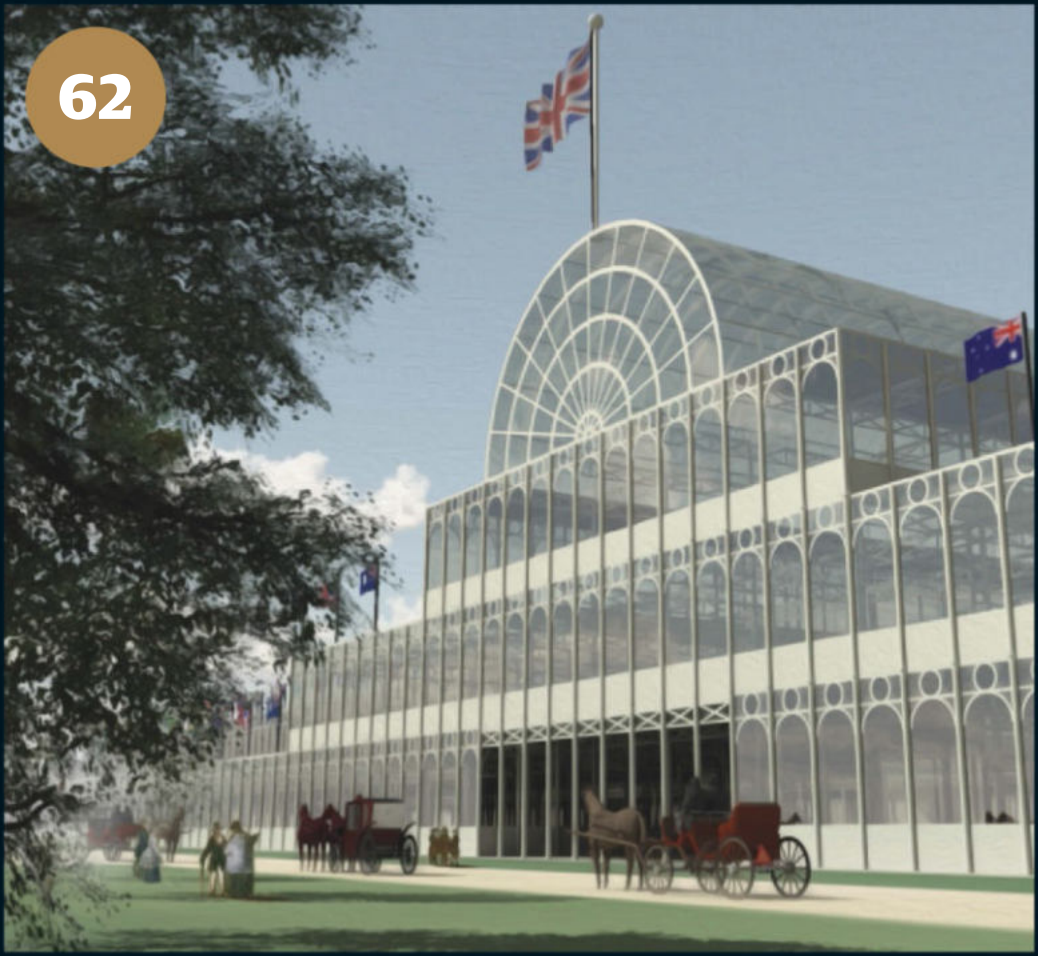
50 Isambard Kingdom Brunel
The iconic engineer at the forefront of industrial development

54 The spirit of invention
Learn about the inventions that transformed everyday life, from transport to communication

62 The Great Exhibition
Step inside the Crystal Palace, home to a spectacular exhibition of trade and industry

64 Ada Lovelace
Understand the fascinating female mind behind the world's first computer

68 Charles Darwin
Follow the voyage of HMS Beagle that informed many of Darwin's controversial ideas about evolution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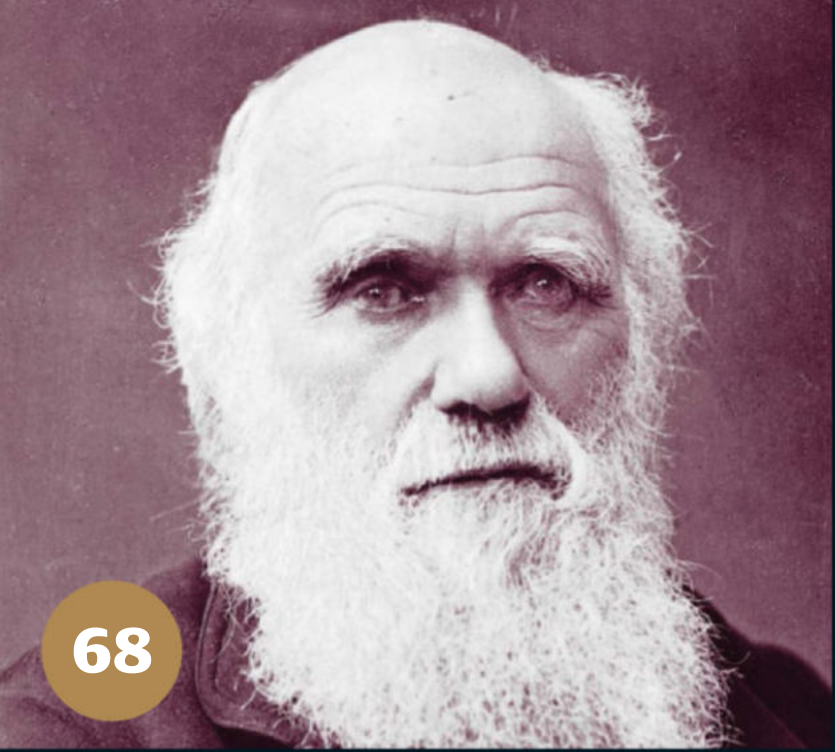

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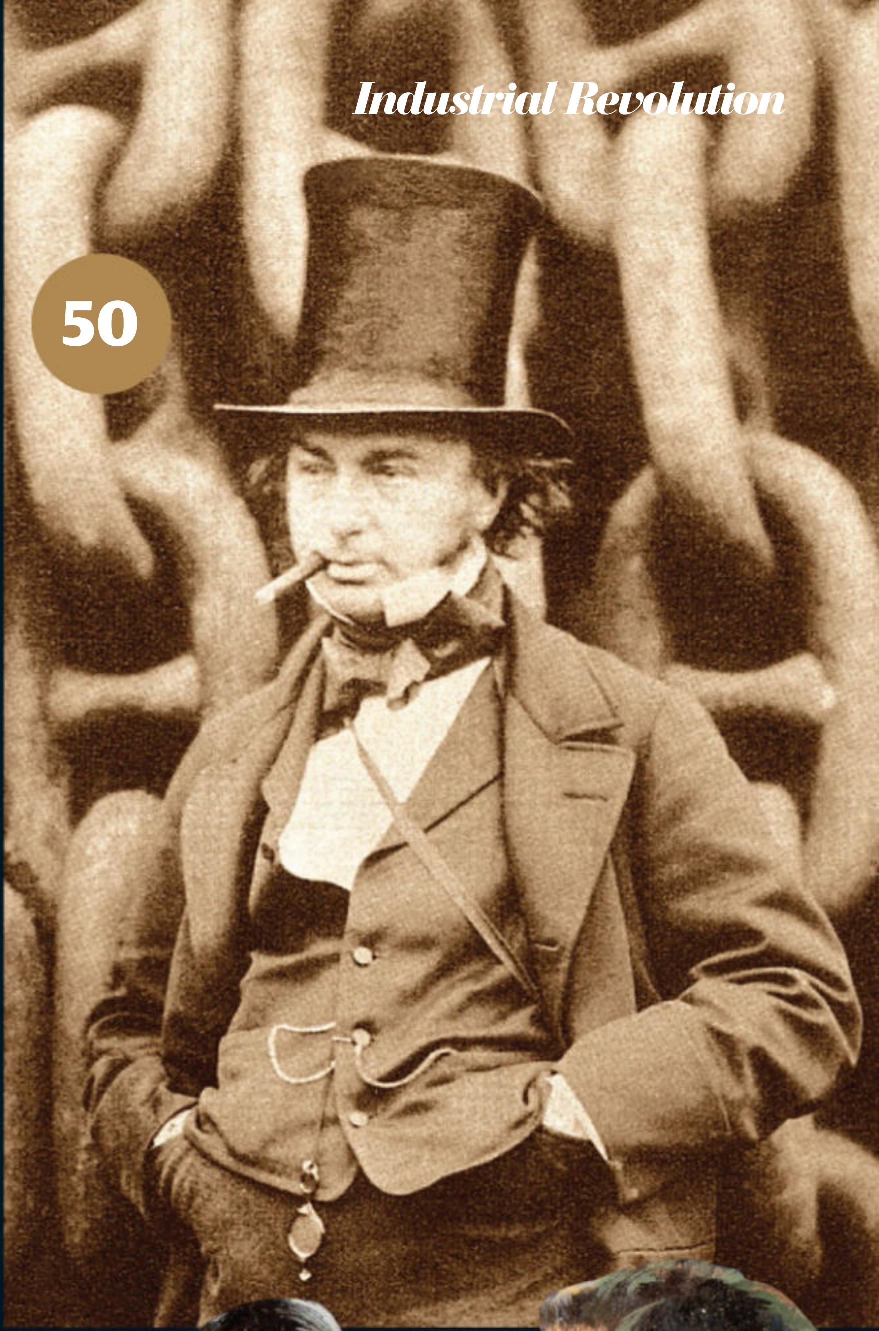

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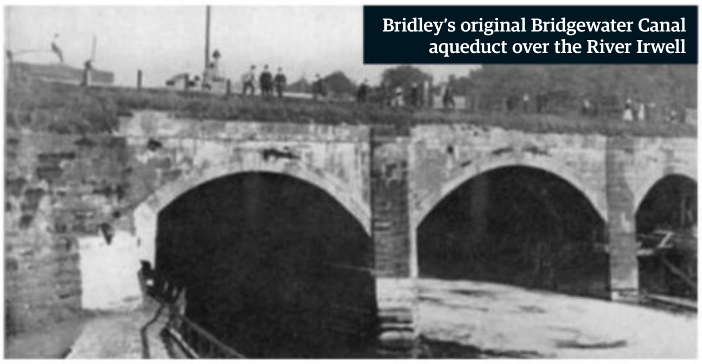
Industrial Revolution timeline


Bridley's original Bridgewater Canal aqueduct over the River Irwell

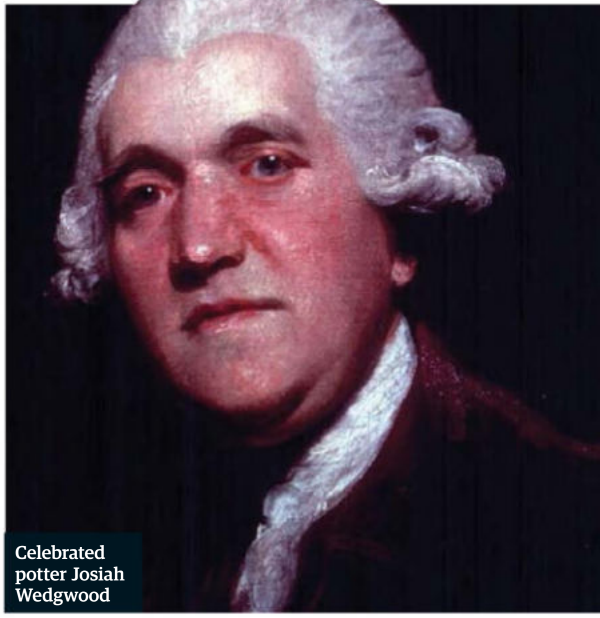
The first transport system BRITAIN 1761

The transportation of heavy goods was vital for the Industrial Revolution to take hold. Canals – man-made rivers deep enough to take barges laden with cargo over long distances – were seen as the answer. The Duke of Bridgewater employed novice engineer James Bridley to construct a canal to carry coal from his mines in Lancashire to Manchester. Opened in 1761, it was a great success. More canals followed, resulting in a canal network that linked the major industrial centres of the country.

The Etruria Works

BRITAIN 1769

Innovative potter and abolitionist Josiah Wedgwood opened his Etruria factory beside the route of the Trent and Mersey Canal. Though incomplete at the time, Wedgwood saw the value of canal transport to distribute his products. And inside the factory, he introduced methods that greatly increased worker output. Wedgwood broke down the potter's skills – throwing, shaping, firing and glazing – allocating each task to a specialist worker. This was 'division of labour', a method of production later copied in numerous industries.


Celebrated potter Josiah Wedgwood

The heat is on
A coke-fuelled blast furnace is developed by Abraham Darby. Smelting iron ore becomes cheaper, greatly improving production of cast iron goods.
1709

Shuttle work
Wool-mill manager John Kay invents the flying shuttle. The device weaves yarn mechanically rather than by hand.
1733

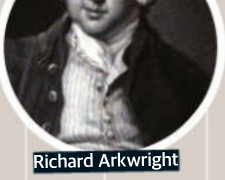
Spinning jenny model at Museum of Early Industrialisation, Wuppertal, Germany

In a spin
The invention of the spinning jenny is credited to James Hargreaves.
1764

Engines, engines everywhere
In collaboration with Matthew Boulton, Watt begins the manufacture of steam engines in Birmingham, England.
1774

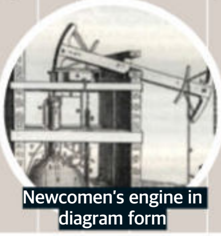
Donkey work
The functions of the spinning jenny and the water frame are combined by Samuel Crompton into one machine. It's called a spinning mule.
1779

Worlds collide
Richard Arkwright sees the potential of Watt's engines. He is among the first cotton-mill owners to use one for production.
1786


Richard Arkwright

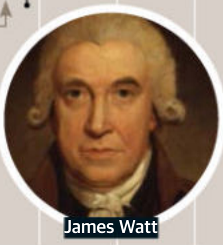
1709 1720 1750 1760 1770 1780

Head of steam
Thomas Newcomen builds his atmospheric steam engine – the first commercially successful such machine – used to pump water from deep coal mines. **1712**


Newcomen's engine in diagram form

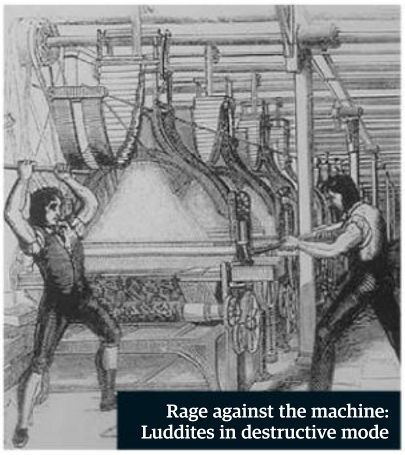
Just add water
Following collaborations with others, Richard Arkwright patents his water frame. It is a spinning device powered by a water wheel. **1769**

Enter James Watt
Adding refinements, such as a separate condensing chamber, to Newcomen's machine, Scottish inventor Watt designs a more efficient steam engine.
1769


James Watt

Watt again
Further experiments lead James Watt to adapt his steam engine. He changes its up-and-down pump motion to a rotary motion for more efficiency. **1781**

Loom for improvement
Another textile industry innovation comes from inventor Edmund Cartwright when he makes the power loom to aid weaving.
1785


Rage against the machine: Luddites in destructive mode

The Luddite riots

BRITAIN 1811-1815

The Industrial Revolution brought change, but also unrest. Skilled workers facing job losses by the drive to mechanisation began breaking into factories to smash up machines. The mythical King Ned Ludd was the supposed Luddite leader. The rioting became so bad that the government passed a law making machine-breaking a crime punishable by death.

SS Great Britain, by pioneering photographer Henry Fox Talbot – possibly the first photo of a ship

Brunel's Great Britain

BRITAIN 1843

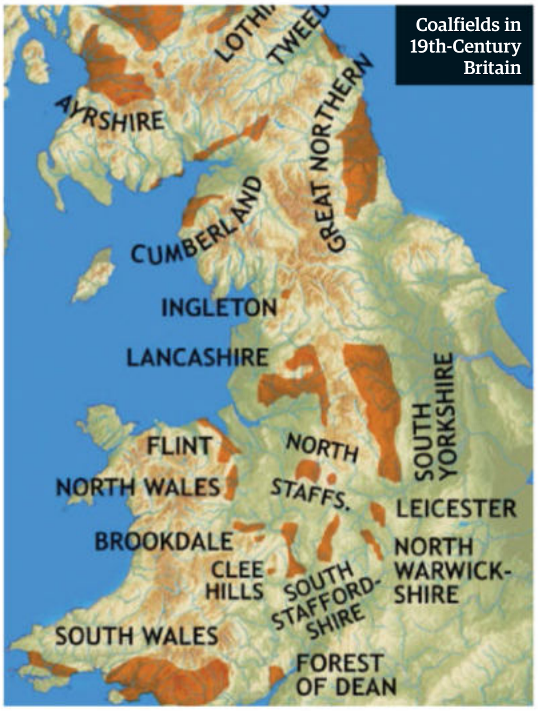
The achievements of civil engineer Isambard Kingdom Brunel were astounding. One of his finest was to design the SS Great Britain. The vessel is considered to be the forerunner of modern ships because it was the first to combine three elements; it was built of metal, it was powered by engine, and it was driven by a screw propeller. Launched in 1843, it was the longest passenger ship in service until 1854. It survives today as a visitor attraction in Bristol.

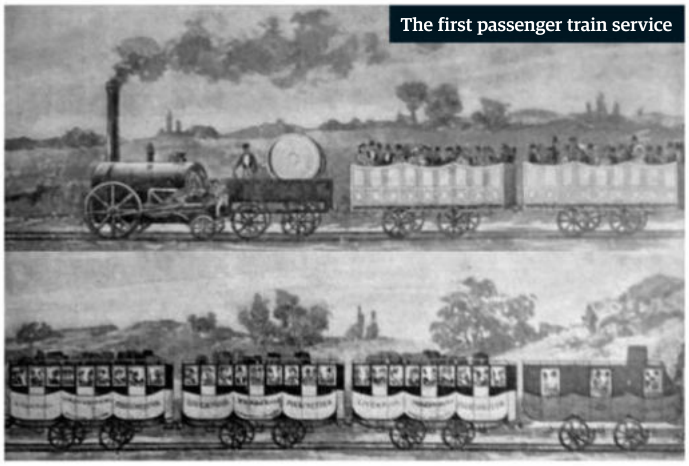
Fuel of the Industrial Revolution

BRITAIN 1900

As the number of steam engines and furnaces grew, the demand for coal increased rapidly. It was in plentiful supply in Britain, though changing from surface extraction to deep-shaft mining was necessary to expand production.

Mining coal was dangerous, with mine owners often ruthlessly exploiting a workforce that included women and children until the 1842 Mining Act. Nevertheless, coal production continued to climb – 10 million tons were mined in 1800, that figure rising to over 200 million tons by 1900.


Coalfields in 19th-Century Britain


The first passenger train service

The train takes the strain

BRITAIN 1830

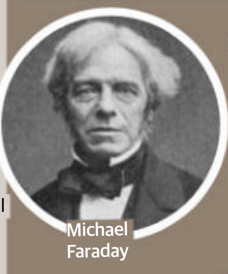
The 56 kilometres (35 miles) of track between Liverpool and Manchester was the first successful railway line in Britain. Opened in 1830, it was designed to carry paying passengers as well as cargo. It made the transportation of goods and raw materials between industrial Manchester and the seaport of Liverpool cheaper and easier, signalling the end of the line for canal transport.

Victorian era

Across the globe
In the USA, Eli Whitney makes the cotton gin. The 'engine' separates seeds from raw cotton, which was previously done by hand. **1794**

A cotton gin displayed at Eli Whitney Museum, Connecticut

Spark of genius
The principle of electromagnetic induction is discovered by Michael Faraday. His research demonstrates that electricity can become of practical technological use. **1831**


Michael Faraday

Man of steel
The first cost-efficient process for converting pig iron into steel is patented by inventor and engineer Henry Bessemer. **1854**

A shining light
Prolific inventor Thomas Edison refines the light bulb into a reliable, long-lasting light source. His entire electric utility system soon follows. **1879**

One of Edison's first demonstration light bulbs

The Wright stuff
Brothers Wilbur and Orville Wright build and fly the first controlled, powered aeroplane. Orville pilots their Flyer for 12 seconds. **1903**

1790 1800 1820 1840 1860 1880 1900 1908

Replica of Trevithick's locomotive at the National Waterfront Museum, Swansea

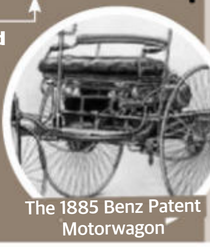
The locomotion
Three years after demonstrating his Puffing Devil steam carriage, Richard Trevithick runs a steam locomotive on rails at a Wales ironworks. **1804**

Need for speed
Robert Stephenson, son of George Stephenson, wins a speed trail contest with his 'Rocket' steam engine. **1829**

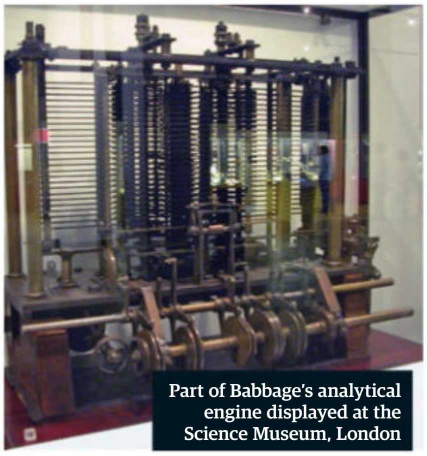
A stitch in time
Improving on Elias Howe's lockstitch sewing device, Isaac Singer develops the first truly practical, successful sewing machine. **1851**

Let's talk
Despite claims from Elisha Gray, Scottish-born scientist Alexander Graham Bell is credited with inventing the telephone. **1876**

Driven to succeed
German mechanical engineer Karl Benz, spurred on by wife Bertha, develops the first practical car powered by an internal combustion engine. **1885**


The 1885 Benz Patent Motorwagon

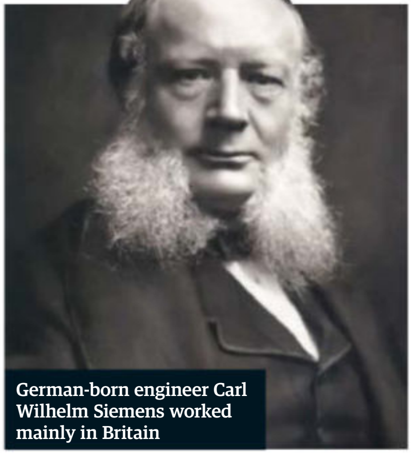
Mass production, mass consumption
The Model T car is manufactured by Henry Ford. It is affordable for many due to assembly-line mass-production methods. **1908**


Part of Babbage's analytical engine displayed at the Science Museum, London

The first computer

BRITAIN 1837

Many engine designs from the Industrial Revolution were never built. Perhaps the most astonishing device not constructed at the time was the analytical engine of Charles Babbage. His vision was for a huge brass, steam-powered, mechanical digital computer. Only much later, when modern-day computer designers began development, did it become clear that Babbage had anticipated almost every aspect of their work.


German-born engineer Carl Wilhelm Siemens worked mainly in Britain

Bulk steel production

BRITAIN 1865

Steel output increased greatly when Bessemer's converter method was improved by the open-hearth process. Devised by Carl Wilhelm Siemens and developed by Pierre-Emile Martin, it was easier to control and allowed for large amounts of scrap iron and steel to be melted and refined. Bulk steel production from the Siemens-Martin process meant a greater use of steel in construction.

Age of industry

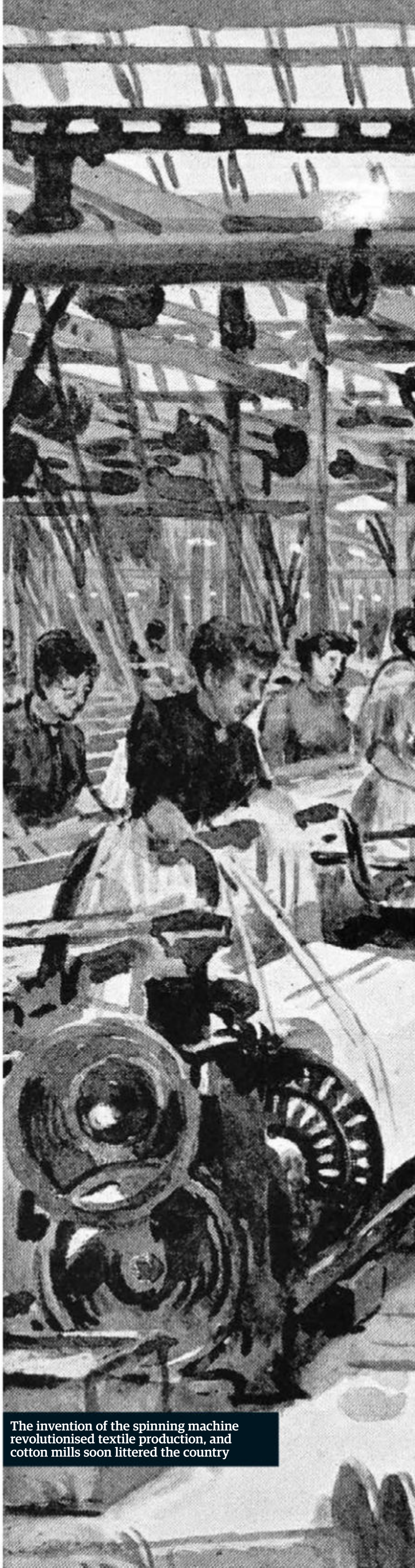
From 1840, the second phase of the Industrial Revolution – the Technological Revolution – heralded a new age of steel, railways and electricity

With the accession of a new queen came an end to an era. The dramatic changes to home and work life brought about by the First Industrial Revolution were now considered the norm, yet Britain's landscape had been forever altered. Rather than the rural patchwork of fields and farms that her grandfather had ruled over, Victoria's Britain was a booming industrial centre.

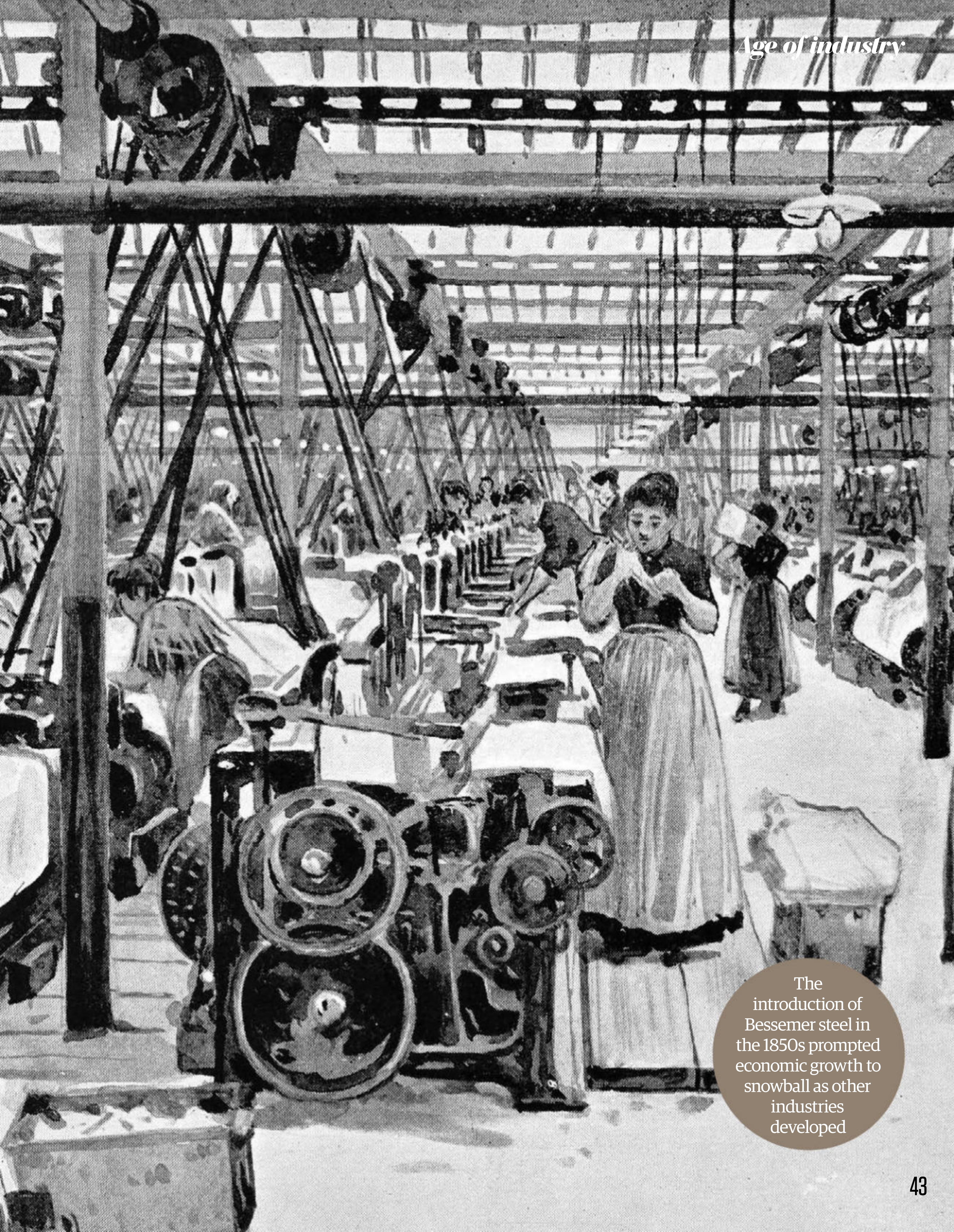
The invention of the spinning machine had revolutionised textile production, and cotton mills now littered the country. The invention of the steam engine had freed these machines from the limitations of water power, meaning factories could now be built anywhere, and the owners had chosen the cities. Workers swarmed in from the countryside in search of jobs, and cities grew at an unprecedented rate. Between 1801 and 1850, Manchester and Sheffield quadrupled in size, and Bradford and Glasgow grew eightfold.

With this new demand for steam power also came a greater demand for coal. Mines were made deeper, and production increased from 2.7 million tonnes in 1700 to 50 million in 1850. Then came the steam train, hauling coal around mines and delivering raw materials to factory doors. Britain was soaring miles above the rest of the world, and it seemed it could go no higher.

But a new revolution was dawning – a technological one. Developments in the field of metallurgy meant that materials like iron and steel could now be made at low cost and high efficiency. Railways were snaked around the country, and huge load-bearing bridges stretched spans previously deemed impossible. The shipbuilding industry boomed, as new materials and technologies meant that ships could now be built to endure the long, perilous journey across the Atlantic. Then an English scientist called Michael Faraday made one of the greatest discoveries in history when he found that an electromotive force could be created by moving a wire through a magnetic field. The principle, known as Faraday's Law opened up the possibility of a world that was powered not by coal but by electricity. By the end of Victoria's reign, Britain had turned electric.



The invention of the spinning machine revolutionised textile production, and cotton mills soon littered the country



The introduction of Bessemer steel in the 1850s prompted economic growth to snowball as other industries developed

Iron, railways and Brunel's gauge war

Miles and miles of railway lines bridged the gap between city and country, as Britain was struck by railway mania

The First Industrial Revolution had seen the invention of a new method for smelting coal, and the coke pig iron it produced was used for making cast-iron goods like pots and kettles, and later as a building material. It revolutionised metallurgy, but it was a highly inefficient process that was impractical for use on a wide scale. However, in 1828 a Scottish inventor called James Beaumont Neilson patented a design for a hot blast technique that drastically reduced the amount of fuel required for the process. In turn, the cost of producing the wrought iron necessary for making things like train tracks fell, allowing for the proliferation of railways in the 1830s.

Though the first steam trains had been designed in the early 1800s, they had mainly been used in coal mines and for transporting goods. The first public steam-hauled railway – the Stockton and Darlington – opened in 1825 and the first inter-city railway in the world was opened in 1830, connecting Liverpool and Manchester. Then, in an event that would change rail travel forever, the first section of the Great Western Railway was completed in the year after Victoria's accession.

The project had been masterminded by merchants in Bristol, who wanted to ensure that the city remained the second most important port in the country, and the chief one for American trade. They decided the way forward was to build a railway line between Bristol and London, one that would outperform those being built in the north.

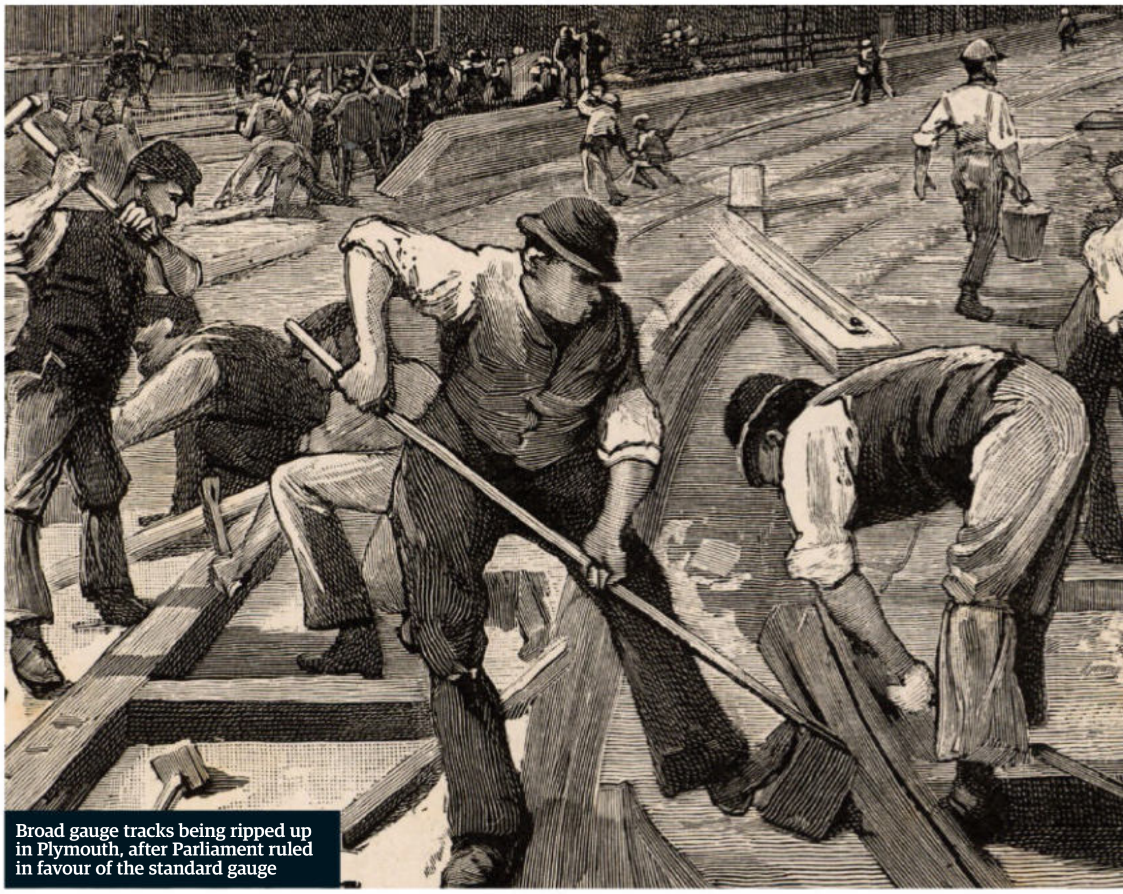
The line was engineered by a young Isambard Kingdom Brunel, who had been an assistant engineer on the Thames Tunnel under his father Marc. It was by far his biggest project to date, and it was to be plagued with controversies. The most infamous was Brunel's decision to use a 7 ¼ feet (2.140m) track gauge, known as a broad gauge. He did this with the future of rail travel in mind, foreseeing that high-speed trains would need wider, lower carriages to reduce air resistance. However, the Birmingham and Gloucester railway had already been built with a standard gauge measurement of 4 feet 8.25 inches (1.435m). When the line would eventually be connected to the broad-gauge Bristol and Gloucester line, all passengers and goods travelling between the north and the south-west would have to change trains half-way through their journey. This problem that sparked the 'gauge war', which was eventually battled out in Parliament.

In 1946, it ruled in favour of the standard gauge, declaring that all trains outside of the south-west were to be built without Brunel's design. Over time, lines that had been made with a broad gauge would have to be converted. By 1892 it had disappeared completely.

Despite its failure to revolutionise railway design, the Great Western Railway did revolutionise travel. It kick-started a new era of rail tourism, as Londoners flocked to the south-west to enjoy its sandy beaches and slow-paced way of life. Upholstered seats, armrests and enclosed carriages soon became the norm, and cheap tickets were also offered, with excursion trains operating to popular destinations and events like the 1951 Great Exhibition. Railways were even built below ground, marking the birth of the London Underground.

By the end of the 19th Century, there was hardly a small town in Britain that did not have access to a train station. Fresh produce could be shipped across the country and newspapers could be printed in London and whisked up to Edinburgh the same day. The railways had opened up a whole new way of life to the British people, one that remains over a century on.

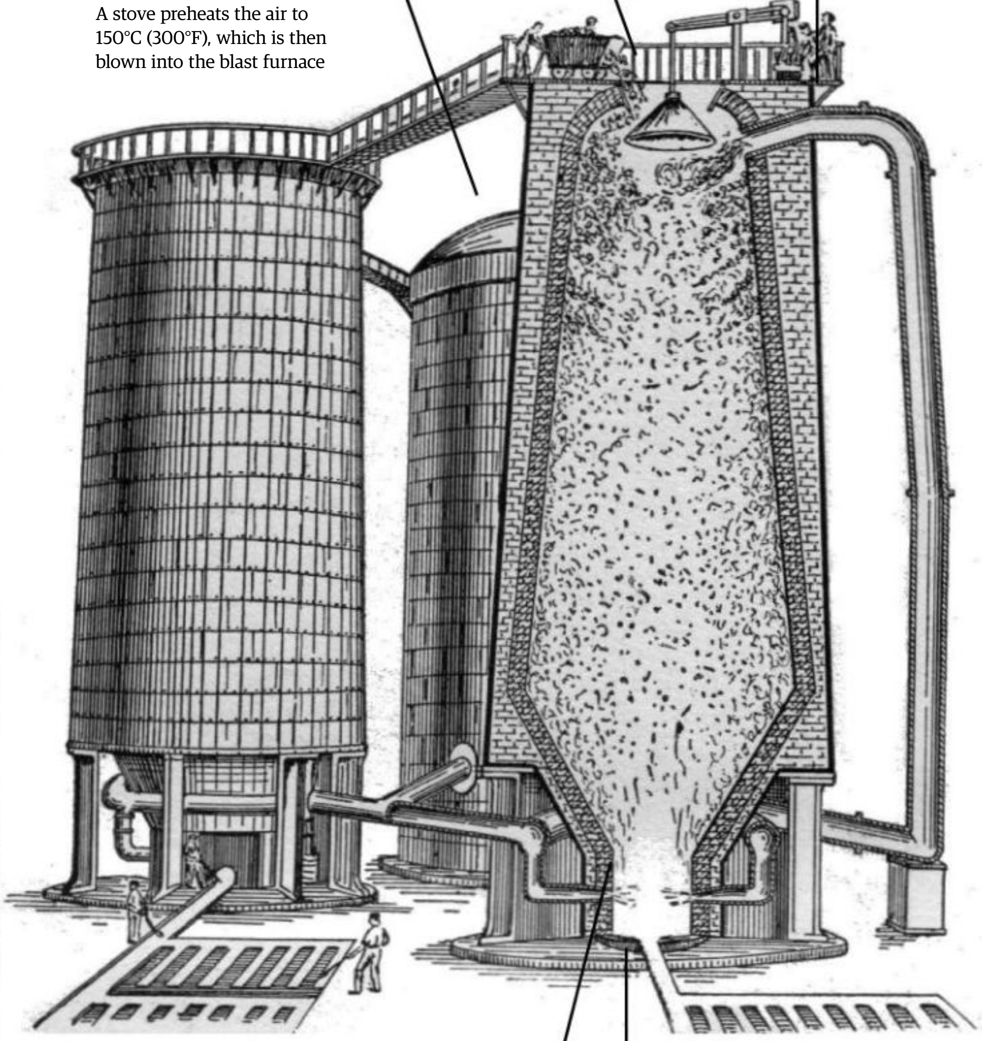
The Royal Albert Bridge was built by Sir Isambard Kingdom Brunel (1806-1859) and was his last and perhaps greatest masterpiece.



Broad gauge tracks being ripped up in Plymouth, after Parliament ruled in favour of the standard gauge

The hot blast process

By preheating the air blown into a blast furnace, fuel consumption could be dramatically reduced and its output increased



1. Charging hole
Iron ore, coke and limestone are poured into the furnace through the charging hole

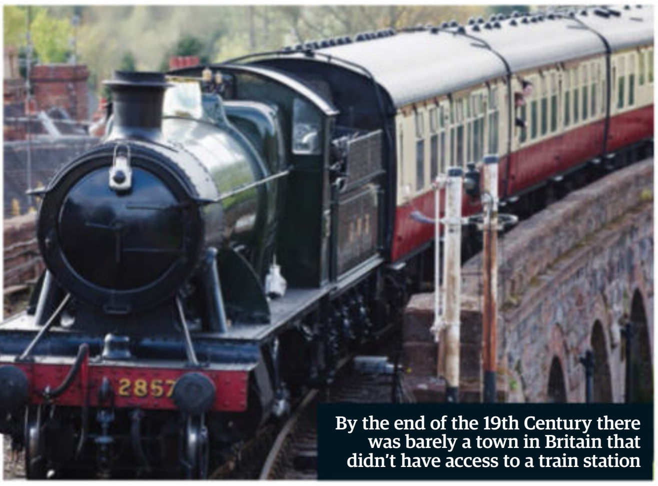
2. Stove
A stove preheats the air to 150°C (300°F), which is then blown into the blast furnace

3. Chemical reactions
The hot air reacts with the coke to produce carbon dioxide. This then reacts with more coke to produce carbon monoxide

4. Hot air
Hot air from the furnace is drawn off to heat the stove

4. Molten iron
Carbon monoxide reacts with the iron ore to produce molten iron, which trickles down to the bottom of the furnace

Brunel was the engineer behind the Great Western Railway that connected London and Bristol



By the end of the 19th Century there was barely a town in Britain that didn't have access to a train station

> "The Great Western railway did revolutionise travel. It kick-started a new era of train tourism"

Steel and shipbuilding

Henry Bessemer's method for making steel transformed Britain's construction industry

Though an improvement on the earlier wooden railway lines, wrought iron was not strong enough to support the heavier locomotives. It was possible to produce low-quality puddled steel, but the process was difficult to control and quality varied. To produce higher quality steel involved a long and costly process. That was until 1856, when Henry Bessemer, an English inventor, patented a design for the first inexpensive process for the mass-production of steel. The key principle was the removal of impurities from iron by oxidation, with air being blown through the molten iron. The oxidation also raised the temperature of the iron mass and kept it molten.

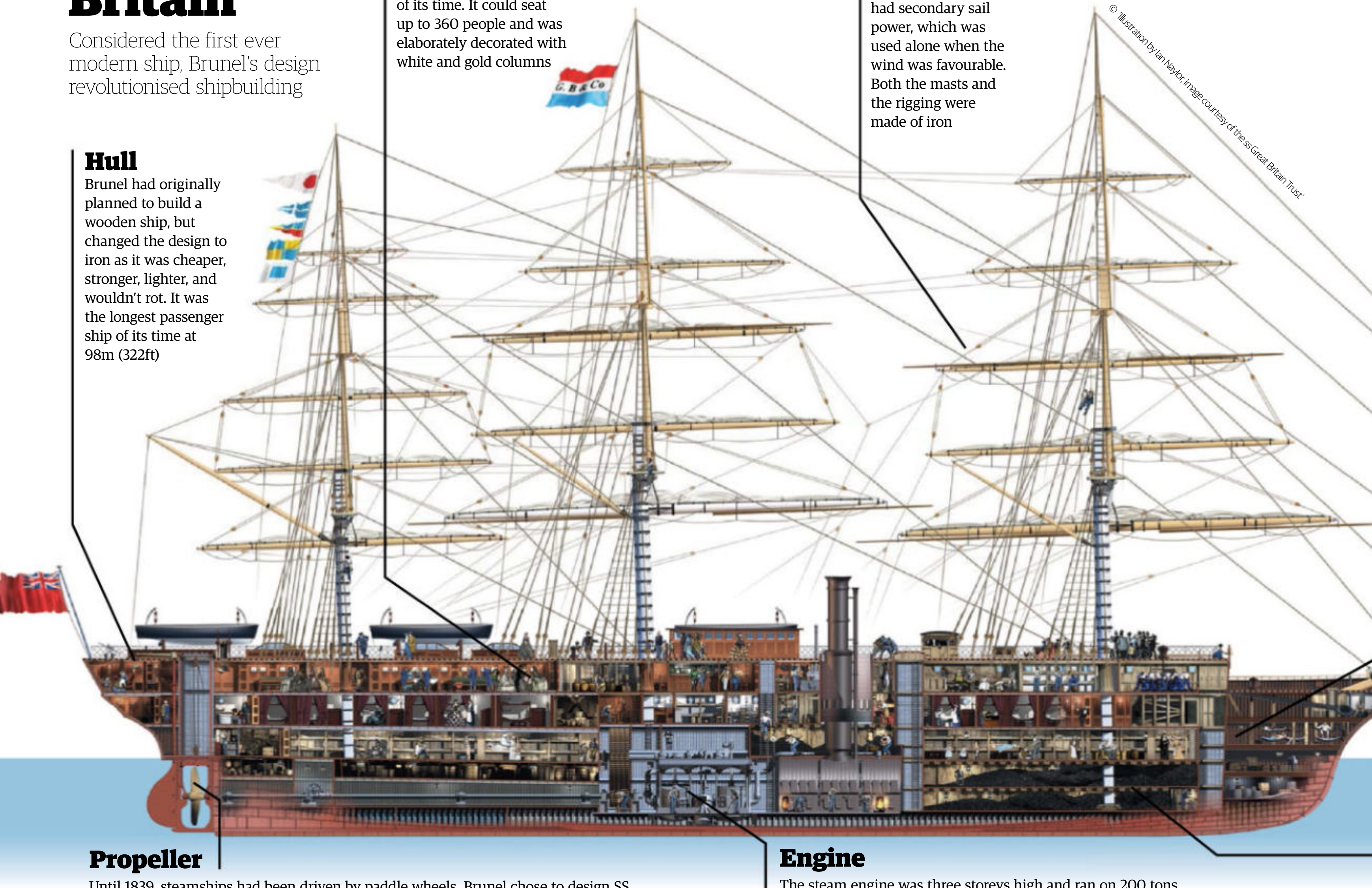
With the introduction of the Bessemer process, steel production boomed during the 1860s as railways could finally be made from steel at a competitive cost. Steel rails lasted over ten times longer than the iron rails used previously, and allowed the use of more powerful locomotives that could pull longer trains and longer railcars. Suddenly the productivity of the railroads rocketed. Rail became the dominant form of transport throughout the industrialised world.

With its advanced industrial technologies, Britain was leading the international trade market. The British government knew that in order to operate and maintain this successful trade empire, they would have to ensure that their ship services were also fast, reliable and regular.

Earlier developments in shipbuilding, like the invention of the screw propeller in 1835, had improved speed and durability, and the invention of the surface condenser allowed boilers to run on seawater without having to be cleaned, making long sea journeys possible. The first steam-assisted crossing of the Atlantic had taken place in 1819, when US ship Savannah sailed from Georgia to

SS Great Britain

Considered the first ever modern ship, Brunel's design revolutionised shipbuilding



© 'illustration by Ian Naylor, image courtesy of the ss Great Britain Trust'

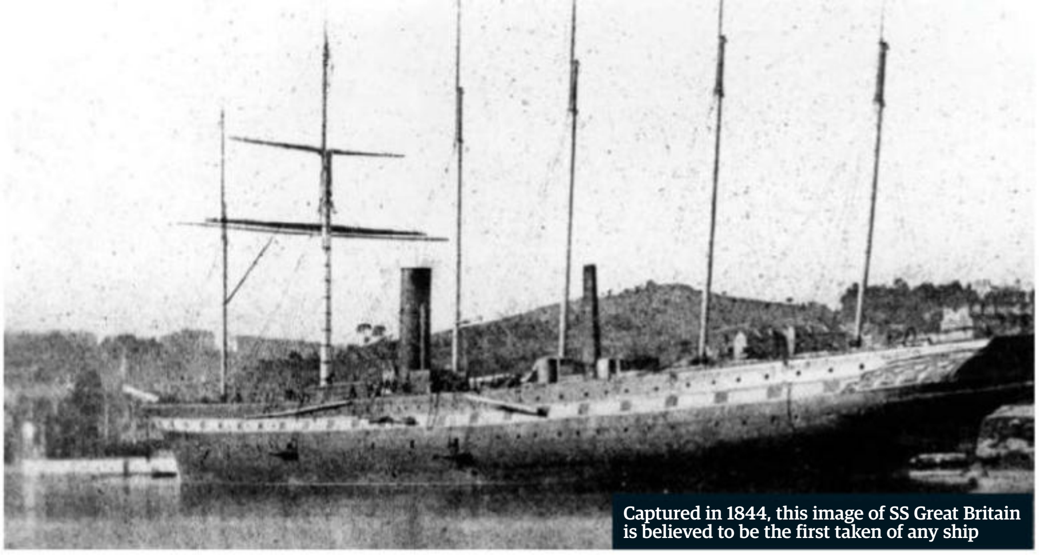
Dining saloon
The dining room was believed to be the finest of its time. It could seat up to 360 people and was elaborately decorated with white and gold columns

Sails
SS Great Britain also had secondary sail power, which was used alone when the wind was favourable. Both the masts and the rigging were made of iron

Hull
Brunel had originally planned to build a wooden ship, but changed the design to iron as it was cheaper, stronger, lighter, and wouldn't rot. It was the longest passenger ship of its time at 98m (322ft)

Propeller
Until 1839, steamships had been driven by paddle wheels. Brunel chose to design SS Great Britain with a new invention called a screw propeller. These also operated using steam but were more economic and allowed greater speed and stability for the ship

Engine
The steam engine was three storeys high and ran on 200 tons of sea water that was stored in the boiler – the largest of its time. It could power the ship forward at a rate of 12 knots



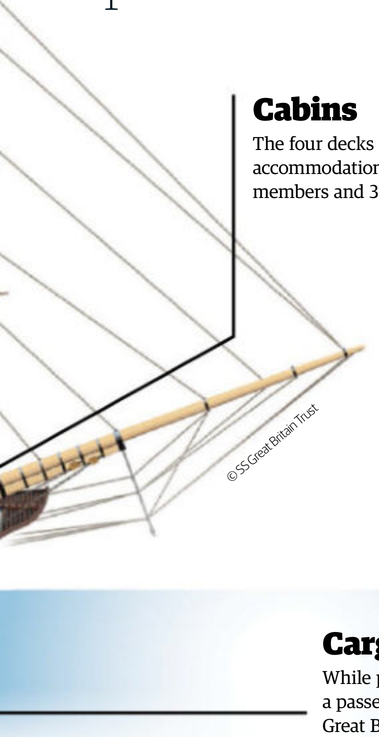
Captured in 1844, this image of SS Great Britain is believed to be the first taken of any ship

Liverpool in 633 hours. Brunel, seeing the feats of engineering accomplished by his rivals, persuaded his directors that a transatlantic shipping line would be a natural extension to the services offered by their railway.

Determined to outdo the Americans one way or another, in 1838 he launched SS Great Western – the longest ship in the world at 236 feet (72 metres). Seven years later, the SS Great Britain was launched, which was considered the most revolutionary ship of the early Victorian period. Designed for speed and comfort, it was made from metal rather than wood, powered by an engine rather than wind or oars, and driven by a propeller rather than paddle wheels. It was equipped with cabins and state rooms for 360 passengers, and had the largest and most lavish dining room ever seen. By 1853, it was operating a London to Australia service, and continued to do so for almost 20 years.

Brunel's engineering vision and innovation made the building of large-scale, propeller-driven, all-metal steamships a practical reality, and between 1860 and 1870 the shipbuilding industry soared. At Clydebank alone, over 800,000 tons of iron ships were built. From the 1870s, steel replaced wrought-iron, resulting in the construction of lighter ships that could travel at much greater speeds. The Royal Navy were the first to take this brave new step into engineering, launching HMS Iris – the first ever all-steel ship – in 1877. Reaching speeds of over 17 knots, HMS Iris was the fastest ship the world had ever seen.

> "Brunel's engineering vision and innovation made the building of large scale, propeller-driven, all metal steamships a practical reality"



Cabins

The four decks provided accommodation for 120 crew members and 360 passengers

Cargo deck

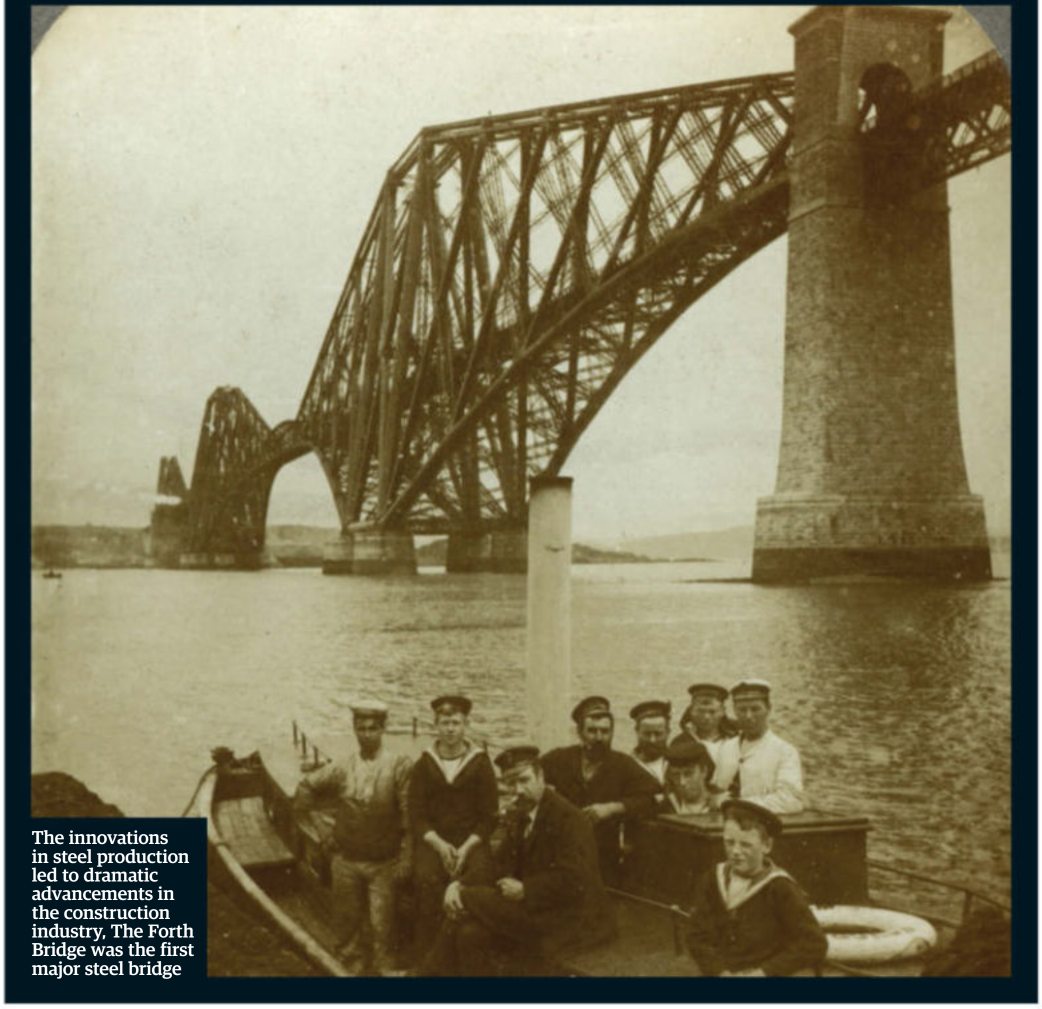
While predominantly a passenger ship, SS Great Britain could also carry 1,200 tons of cargo, and the same amount of coal

© SS Great Britain Trust

The Forth Bridge

The developments in steel manufacturing led to dramatic changes in the construction industry. The first ever steel-framed building – the Royal Insurance Building in Liverpool – was built at the end of the 19th Century. From the early 1900s until the Second World War, steel framing became the dominant form of construction for multi-storey buildings before being replaced by concrete.

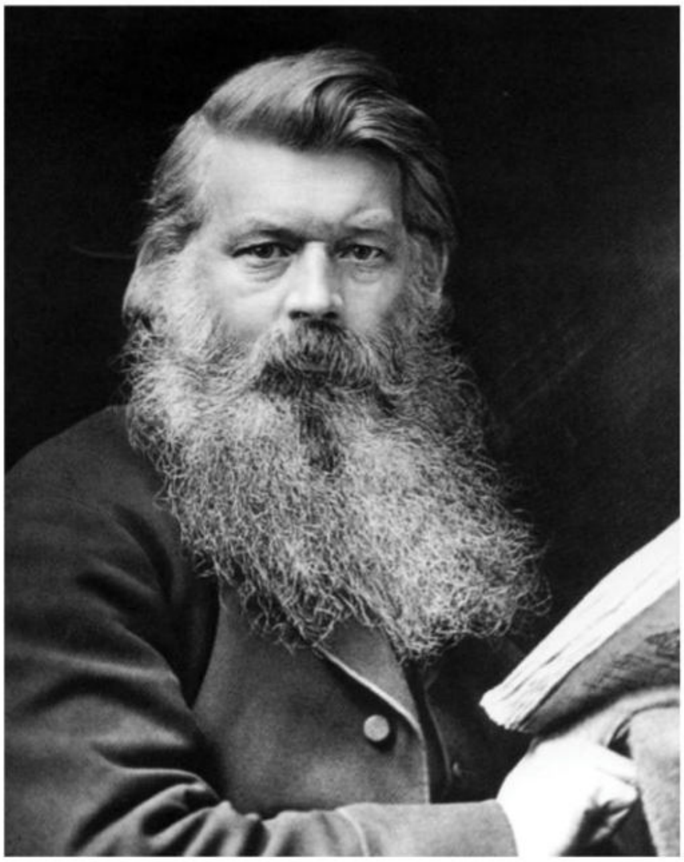
Similarly, engineers took advantage of steel's properties for bridge building, and in 1890 the Forth Railway Bridge in Scotland was built – the world's first major steel bridge. It required 53,000 of steel tons to construct, and at the time of completion it had the longest single cantilever bridge span in the world at a staggering 520 metres (1,710 feet).

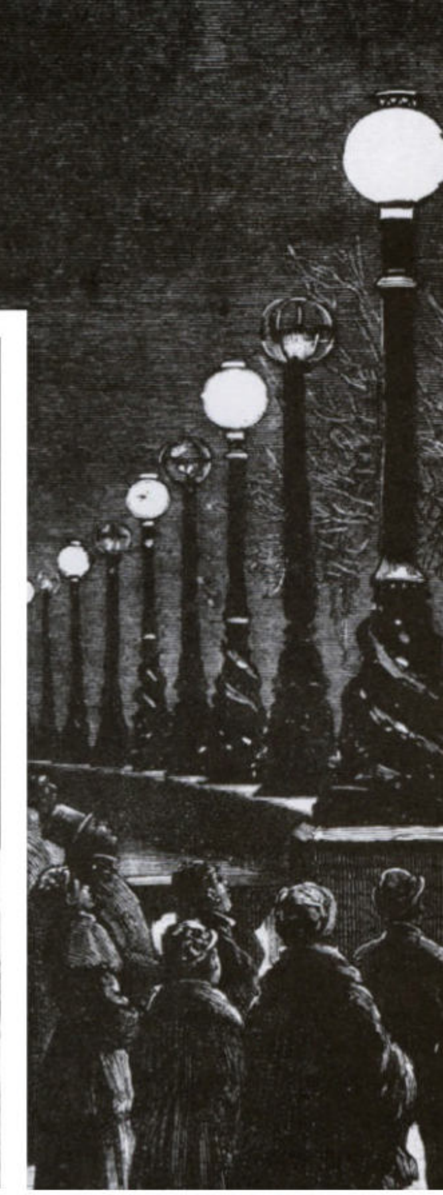


The innovations in steel production led to dramatic advancements in the construction industry, The Forth Bridge was the first major steel bridge

Electrification

Faraday's discoveries lit homes and made way for the modern assembly lines





Before Queen Victoria's reign, an electric current could only be produced using a battery. In 1931, Michael Faraday discovered that electricity could be generated by simply moving a magnet over a wire. This discovery heralded the practical use of electricity in technology.

One of the most significant uses was for electric lighting in homes. In 1850 Joseph Swan, an English physicist and chemist, began experimenting with carbonised paper filaments in a glass bulb. In 1880, after decades of trial and error, he patented a design for the first incandescent light bulb.

In 1891, the world's first modern power station was completed, supplying electricity to buildings across London. This new development led to the processes of the assembly line and mass production – both key facets of the Industrial Revolution. Not only did electricity speed up the manufacturing process, it also helped improve conditions in the factories, which would no longer be lit by hot, polluting gas lamps.

While they may have taken a while to impact everyday life, these inventions spelled life-changing implications for the home and the workplace.

Telecommunications

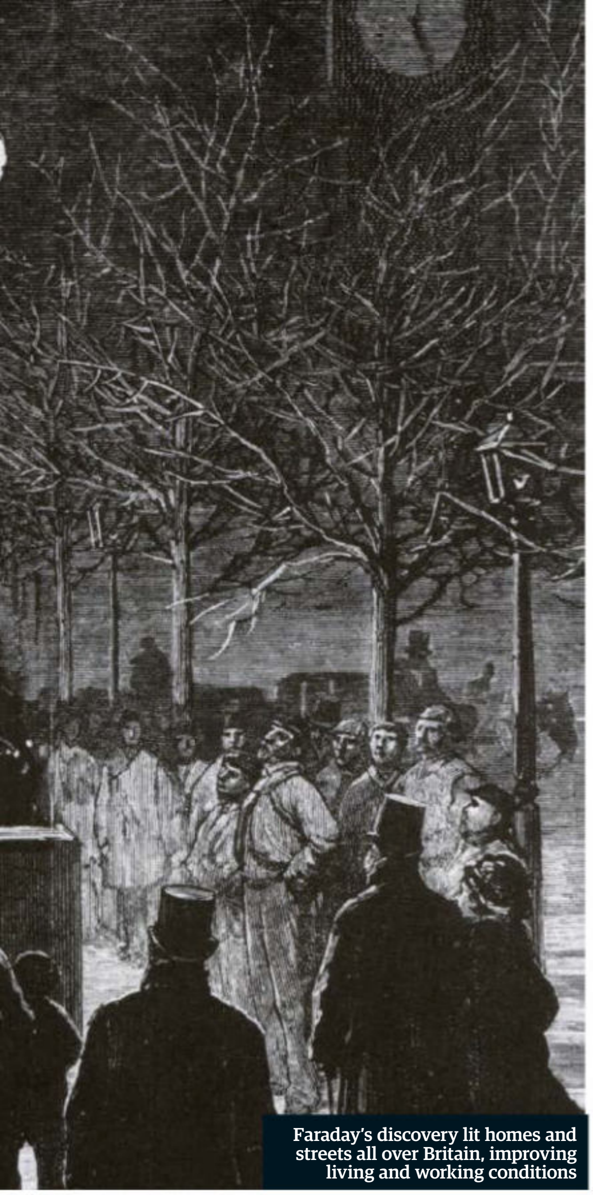
The invention of the telegraph, telephone and radio signalled the start of a new era of mass personal communication

The electrification of Britain, along with the spread of the railway, also spurred on the development of another important industry: telecommunications.

In 1837 two Englishmen called William Fothergill Cooke and Charles Wheatstone installed the first commercial telegraph system between Euston railway station and Camden Town. The system used electric current to move magnetic needles and thus transmit messages in code. It was used across the rail network, both to send messages and to control signalling. An undersea cable was built between England and France, and Brunel's Great Eastern steamship later laid down the first transatlantic cable.

The global network spread rapidly. With transmitters in every post office, mass communication was now possible. With the invention of the telephone by Alexander Graham Bell in 1876, and Guglielmo Marconi's development of practical radio transmissions in 1897, the world suddenly became a much smaller place.

Alexander Graham Bell's invention of the telephone in 1876 saw the rise of long distance communication



Faraday's discovery lit homes and streets all over Britain, improving living and working conditions

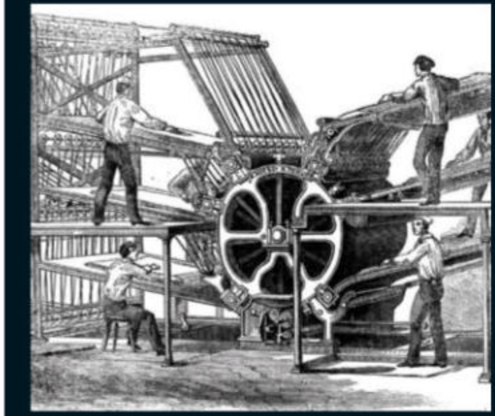
William Fothergill Cooke and Charles Wheatstone installed the first telegraph system in London

Developments in other industries

With the innovations in iron, steam-power and textiles, as well as electricity and steel, productivity soared in many British industries

Media

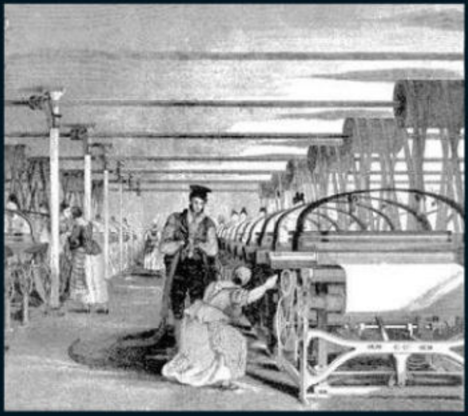
Not only did the Industrial Revolution see the mass production of textiles and metals, it also signalled the start of the mass media. The invention of the steam-powered rotary printing press in 1843 allowed printers to create millions of copies of a page in a single day. Combined with the development of the railways, newspapers could now be printed and transported to thousands of destinations around the country, making news more accessible than ever.



The invention of the steam-powered printing press made news more accessible to all

Textiles

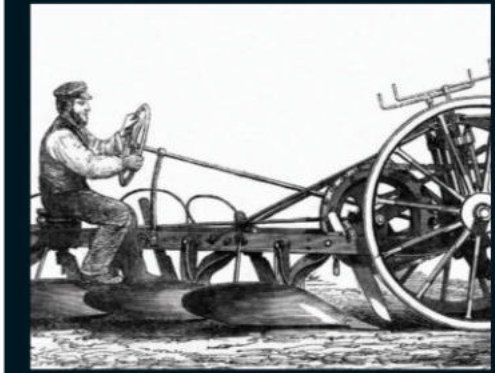
The textile industry was at the centre of Britain's industrial expansion in the Victorian period. Technological advances meant that cottons, wools, silks and dyestuffs could be produced at unprecedented rates. By 1870, steam power in factories was the norm, and the invention of machinery like the semi-automatic Lancashire Loom and the self-acting mule meant that cotton could be spun in a fraction of the time it had taken a century earlier.



By 1870, steam power in factories was normal all over the country, speeding up production

Agriculture

Though the Industrial Revolution saw a move away from agriculture, it remained an important part of the British economy. In the decade following Victoria's accession, agriculture flourished as new crops were planted and artificial fertilisers started being used. However, the invention of reliable refrigeration technology towards the end of the 19th Century meant that cheap meat could be imported from overseas, causing a drop in British sales.



Agriculture flourished in the decade after Victoria's accession

Automobile

The world's first automobile was patented by Karl Benz in Germany, 1886. Two years later, he began to sell his vehicles, making them the first commercially available cars. In the USA, Henry Ford took advantage of the new assembly line process to run his own car manufacturing business.

In Britain, Herbert Austin founded Wolseley Motors Limited, which was the UK's largest car manufacturer until Ford opened its doors in 1913.

Wolseley Motors Limited was the UK's largest car manufacturer until 1913

> "The invention of the steam-powered rotary printing press in 1843 allowed printers to create millions of copies of a page in a single day"

© Alamy; Rex Features; SPL

Isambard Kingdom Brunel

One of the most influential engineers in the history of Britain, he designed numerous routes, structures and ships

The Industrial Revolution was a pivotal moment in the evolution of Britain into a world superpower. Taking place from 1760 to around 1840, it was a time of tremendous transition and upheaval, with the country becoming more productive and connected than ever before. It gave individuals with the relevant capacity and wherewithal the chance to showcase their talents – one such person was Isambard Kingdom Brunel.

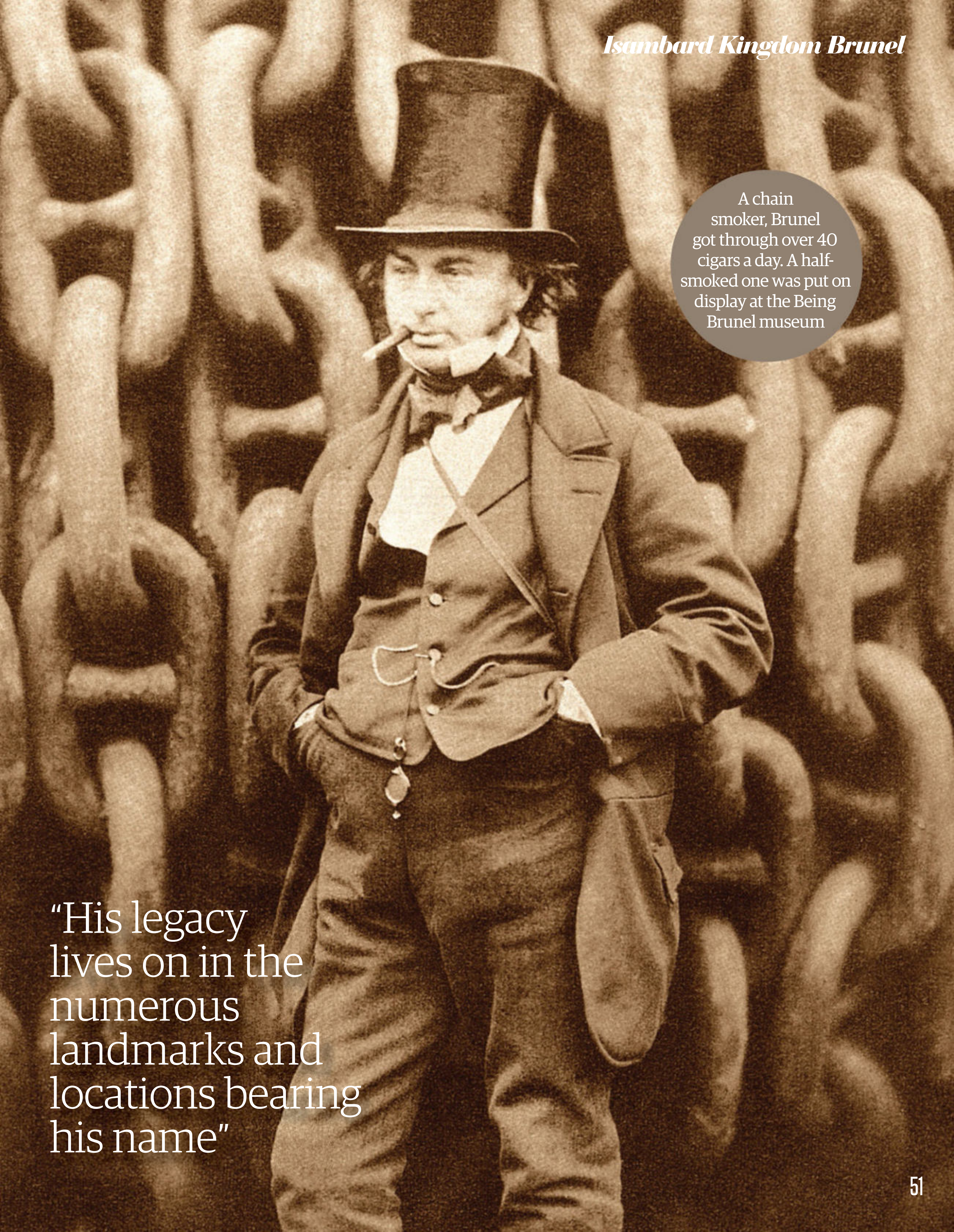
Born on 9 April 1806 in Portsmouth, he was the son of Sir Marc Isambard Brunel, himself an engineer of some renown. The beneficiary of an affluent upbringing, Marc was determined that Isambard receive a similarly good education. Having already imparted upon him a solid grounding in engineering principles, he sent him to a French academy to gain experience first-hand, before returning to work as an assistant for his father.

> He served as apprentice to the distinguished and renowned Swiss clockmaker, Abraham-Louis Breguet

It was shortly after this, in 1825, that he would take on his first role of real responsibility, serving as assistant engineer on a project to construct a tunnel underneath the river Thames. Despite being considerably younger than the majority of his colleagues, Isambard proved to be an energetic and efficient leader, driving the project forwards – often in the absence of his father, who was preoccupied with other issues and his own poor health. However, the work was dangerous, which Isambard discovered soon enough. After initially escaping a tunnel flooding on 18 May with no loss of life, a much more serious incursion occurred on 12 January 1828, killing six and nearly fatally injuring Isambard. He was hospitalised and the project was postponed, but nonetheless it provided him with vital experience for his future career.

The following year, Isambard was drawn to Bristol by a competition to design the proposed Clifton Suspension Bridge, which was to run over the river Avon. His design was chosen, causing him to remark, "I have to say that of all the wonderful feats I have performed since I have been in this part of the world, I think yesterday I performed the most wonderful. I produced unanimity among 15 men who were all quarrelling about that most ticklish subject – taste." The project was interrupted and ultimately halted indefinitely by the effects of the Bristol Riots of 1831, but Brunel's skill had got him noticed.

In 1833, he was appointed chief engineer for the Bristol Railway project, and immediately set to work. Over the next ten years, Brunel's work on what would become known as the Great Western Railway would come to dominate his professional life. While other railways were built in stages, from the beginning Brunel conceived the project as a whole, providing a vital link between Bristol and



A chain smoker, Brunel got through over 40 cigars a day. A half-smoked one was put on display at the Being Brunel museum

“His legacy lives on in the numerous landmarks and locations bearing his name”

How his son carried on the tradition

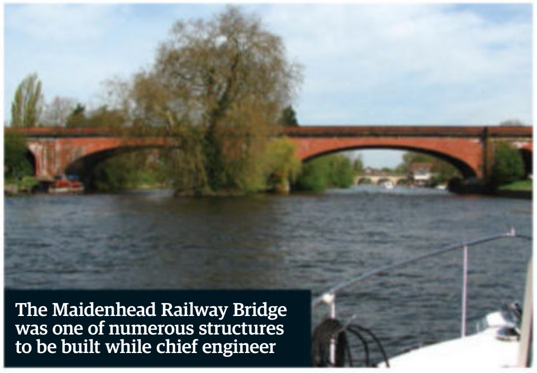
Much like how Isambard followed in the footsteps of his father in choosing engineering as a career path, his second son, Henry Marc Brunel, also mimicked his father's lifestyle choice.

He took an interest in his father's work from an early age, even accompanying him on occasion: he was present when construction on the Tamar Bridge began, and even acted as a runner during the launch of the Great Eastern.

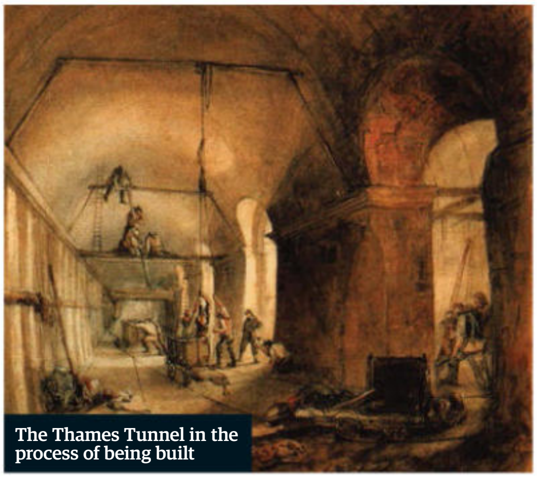
After attending private school at Harrow, he attended King's College London from 1859-61, after which he took on a number of engineering apprenticeships before moving into the field full-time.

Although his achievements never matched those of his father (in all fairness, how could they?), he still managed to leave his mark, teaming up with fellow engineer Sir John Wolfe-Barry on a number of projects, including the Blackfriars Railway Bridge, Barry docks in Wales and Creagan Bridge in Scotland, not to mention the missionary and hospital boat, the SS Chauncy Maples.

> "The SS Great Eastern was conceived as being able to make voyages to the likes of Australia and India, and was unprecedented in its size"



The Maidenhead Railway Bridge was one of numerous structures to be built while chief engineer



The Thames Tunnel in the process of being built

London. Brunel completed the vast amount of the surveying himself , going against convention to choose a route through the Vale of White Horse (providing better access to Oxford, Gloucester and the north), connecting London to Reading via Paddington (for which he would design the station), and Bath to Bristol by way of the Avon Valley. After some opposition, an act of Parliament was passed in 1835, allowing the building work to commence.

Brunel was present throughout the construction process, notably insisting on the introduction of new 'broad gauge' railway lines, set on timber, which were deemed vital to increase speeds. The first section of the new track – from Paddington to Maidenhead – was opened on 4 June 1838, incorporating the Wharncliffe Viaduct, the first in a series of similarly impressive structures (viaducts at Hanwell and Chippenham would also stand out). The route was extended to Twyford in July 1839, then Reading in March 1840, through the Vale of White Horse to Wootton Basset by December 1840, down into Chippenham in May 1841 and finally on to Bristol in June. This last section of the route was delayed due to difficulties with the construction of the 1.75-mile long Box Tunnel, which in turn produced a knock-on effect with delays to the completion of the Bristol-Bath route.

Among the new landmarks on this route were the Bristol Temple Meads railway station, the bridge over the river Saltash near Plymouth and the tubular, suspension and truss bridge over the Wye at Chepstow, built on the route connecting Swindon to Gloucester and South Wales.

Brunel's vision didn't stop at merely linking London to Bristol, though. He envisioned an interconnected travel network by which people could take the train from one end of the country to the other, before continuing across the Atlantic to New York. To this end, he needed ships that were capable of both covering the distance and transporting people in relative comfort.

His first attempt at this, the SS Great Western, was constructed in the Floating Harbour in the port

Defining moment

Thames Tunnel collapse
12 January 1828

While working on the Thames Tunnel, the 21-year-old Brunel almost dies when part of the tunnel flooded. Six men lose their lives, and Brunel suffers a badly injured leg and internal injuries, being saved only by prompt action from fellow engineer Richard Beamish. He is sent off to Brighton to recuperate, only for the illness to relapse, and he doesn't recover until the spring. In the meantime, work on the tunnel grinds to a standstill – the project wouldn't be resumed until 1834, and remained unfinished until 1843.

Defining moment

Chief engineer of Great Western Railway 1833

Brunel is appointed chief engineer of the proposed Great Western Railway, intended to link London with Bristol. After an act of Parliament in 1835, work begins on the project, with Brunel taking a hands-on role. Along the way, a great many long-lasting bridges, viaducts, tunnels and other landmarks are constructed, such as the Box Tunnel, Paddington Station and the Hanwell and Chippenham viaducts. It arguably remains Brunel's most notable legacy, with much of his work remaining intact today.

Timeline

1806

Born
Isambard Kingdom Brunel is born in Portsmouth, the son of Sophia Kingdom and French-born engineer Marc Isambard Brunel, whose footsteps he will go on to follow.
9 April 1806

1820

Attends college in France
At the age of 14, Brunel is sent to France to study. He first enrols at the College of Caen in Normandy, before moving on to the Lycee Henri-Quatre in Paris. At 16, he returns to Britain.
1820

1829

Designs Clifton Suspension Bridge
While in Bristol, Brunel successfully designs what will go on to become the Clifton Suspension Bridge. Due to various delays, it won't be completed in his lifetime.
1829

1836

Marries Mary Elizabeth Horsley
Brunel marries Mary Elizabeth Horsley – the daughter of noted musician William Horsley – in Kensington Church, London. Their marriage is a happy one, and they go on to have three children together.
5 July 1836

1838

SS Great Western maiden voyage
Then the biggest ship in the world at this time, the vessel sets off to Bristol for its maiden voyage to New York. Brunel is injured when a fire breaks out in the engine room.
31 March 1838

of Bristol, being completed and launched in 1837. Aside from a few early mishaps (including Brunel himself being injured during an engine-room fire), the Great Western successfully made its maiden voyage to New York, although its large size made frequent use of the Floating Harbour inconvenient, thus restricting it to the river near Avonmouth.

His next project, the SS Great Britain, proved to be similarly problematic. Brunel had been hired in 1832 to report on the deteriorating condition of Bristol's Floating Harbour, which he did, although the Dock Company – which owned the Harbour – delayed acting on his suggestions. This indecision came to a head upon the completion of the SS Great Britain in 1843, when it became clear that the ship was too wide to pass through the entrance lock. Brunel had anticipated early on that improvements to this area would have been made by this point, but his suggestions weren't acted on. Ultimately, masonry had to be removed from the side of the lock so the ship could get through, never to return again, as it was sold off after the Steamship Company was wound up in 1848.

In 1854, Brunel began to look even further afield. The SS Great Eastern was conceived as being able to make voyages to the likes of Australia and India, and was unprecedented in its size. It was 700 feet (210 metres) long and capable of carrying around 4,000 passengers. In his own words, he wanted "to make long voyages economically and speedily by steam, [which] required the vessel to be large enough to carry the coal for the entire voyage at least outwards and unless the facility for obtaining coal was very great at the out port – then for the return voyage also."

Brunel (second from right) preparing for the launch of the SS Great Eastern in November 1857; this first attempt failed

He was renowned for his energy and hard-working ethos. He would regularly work 18-hour days

However, the construction process of the SS Great Eastern would prove to be an ordeal for Brunel. The project quickly ran over budget and overdue, and his relationship with shipbuilder John Scott Russell quickly became strained. While Brunel was meticulous and hands on, wanting to be involved at every step of the build, Russell was more laid back, giving his workers instructions and then leaving them to get on with it. As the shipyard was under Russell's control, Brunel relied on his co-operation. When it became clear that this wasn't to be as forthcoming as he would have liked, he grew frustrated. Further adding to his problems, the first attempt to launch the ship on 3 November 1857 failed. It was successfully launched in 1858, and made its maiden voyage to New York in 1860 – which Brunel wouldn't live to see. Although it never fulfilled its original purpose of travelling to Australia, the vessel found use in successfully lying transatlantic cables, and at the time was the largest ship ever built.

In addition to his work on travel infrastructure, Brunel worked in a number of other fields. He was responsible for the redesign and construction of various docks, such as Cardiff, Milford Haven and Monkwearmouth, and designed prefabricated hospitals to be shipped out to the Crimean War. He was elected a Fellow of the Royal Society in 1830, and married Mary Elizabeth Horsley in 1836, with whom he had three children: Isambard Brunel Junior, Henry Marc and Florence Mary.

Brunel suffered a stroke in 1859, and died ten days later on 15 September, aged 53. He was buried close to his father in the Kensal Green Cemetery in London. His legacy lives on, not only in the numerous landmarks and locations bearing his name, but also in the travel network that he left behind. A large proportion of the rail routes and bridges in the South West were a result of Brunel's drive to improve the country's infrastructure, in doing so, making him a vital player in the journey to what Britain is today.

The SS Great Eastern never completed its initial aim of reaching Australia

Defining moment

SS Great Eastern transatlantic maiden voyage 17 June 1860

Of all the projects he worked on, the SS Great Eastern proved to be the most trying. Going over-budget and overdue, it quickly became an ordeal, with Brunel frequently clashing with shipbuilder John Scott Russell. After a number of mishaps (the first launch in 1857 failed, and the maiden voyage to Weymouth in 1859 resulted in a boiler explosion that killed six), it made its maiden transatlantic voyage in 1860 to New York.

1841

Great Western Railway completed
Eight years after being appointed chief engineer on the project, the full route of the Great Western Railway is finally completed. A towering achievement, it perhaps remains his finest legacy.
June 1841

1843

SS Great Britain floated out
Weighing 3,018 tons and measuring 322 feet long, the SS Great Britain is floated out into Bristol City Docks – where it waits for 18 months until the dock is widened enough for it to leave.
19 July 1843

1848

Chartist crisis
During the events of the Chartist crisis in London, Brunel enrols as a special constable in Westminster, with extra numbers needed during the tumultuous activities that ensued.
May 1848

1855

Starts to build Renkioi Hospital
Brunel starts to design prefabricated hospital shelters to be stationed at Renkioi in the Dardanelles during the Crimean War. Careful attention is paid to heating, ventilation, drainage and sanitation.
February 1855

1859

Passes away
Ten days after suffering from a stroke, Brunel dies at the age of 53. Like his father, he is buried in the Kensal Green Cemetery in London.
15 September 1859

© Alamy

The spirit of invention

In a setting of vast change, the contagious spirit of invention was gaining momentum and inspiring the nation's most brilliant minds

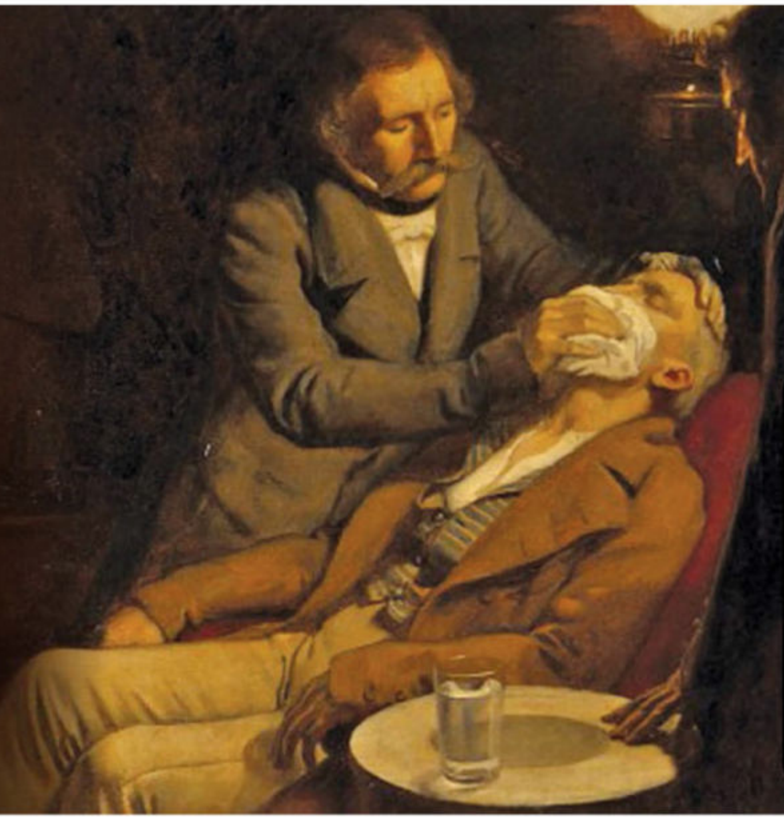
The air was heavy with the smog of the Industrial Revolution as Britain chugged and clinked with new-fangled machinery. It marked a period where major technological developments hugely enhanced the standard of living and set the groundwork for today's somewhat sleeker gadgetry.

By the 1830s, first-world countries were powered by steam and built with iron; there were engines, bridges and trains in drains. Elsewhere, advances in medicine were coming thick and fast. There were tablets that would ease pain and ether that would remove it entirely. A surgical operation was no longer something to consider committing suicide over. Mortality rates fell and Europe's population doubled during the 19th Century to 400 million.

Among the life-saving inventions were those that enabled communication and home improvements that made life a little easier. Here you'll find the best of the best, as well as the stories of how they came to life in what was a fascinating time in history.

Medicine

Anaesthetic



Before anaesthetic, the ancient Greeks would use herbal concoctions in a bid to reduce the stress of medical procedures. The word itself is Greek, meaning 'without sensation', but this wasn't coined until 1846 when poet and physician Oliver Wendell Holmes referred to a new technique he'd witnessed, where a patient was given ether before having a tumour painlessly removed.

Ether had existed for hundreds of years, but no one had thought to use it as an anaesthetic until former dental student William Morton began experimenting in secret on small animals and even himself. Until then, students had been inhaling ether fumes for fun, dubbed 'ether frolics', where people would lose control of their motor functions and incur cuts and bruises without feeling any pain.

Gone were the days of plying patients with alcohol and opium, commanding several men to pin them down as the scalpel made contact with flesh. Deaths were avoided as surgeons were able to take more time operating and, in return, more medical discoveries were made.

DATE 1846

KEY INVENTORS
WILLIAM MORTON,
CHARLES JACKSON,
CRAWFORD LONG

Aspirin

Aspirin is one of the most successful over-the-counter pain remedies of all time, with new benefits constantly being uncovered. It was one of the first drugs to be made available in tablet form, which isn't surprising when you consider that the natural form of aspirin is found in plants such as willow and myrtle and had been used for easing pain for centuries. In 400 BCE, Greek physicians were serving women willow leaf tea during childbirth and in 1763 a reverend in England was dishing out dried willow bark to sufferers of rheumatic fever.

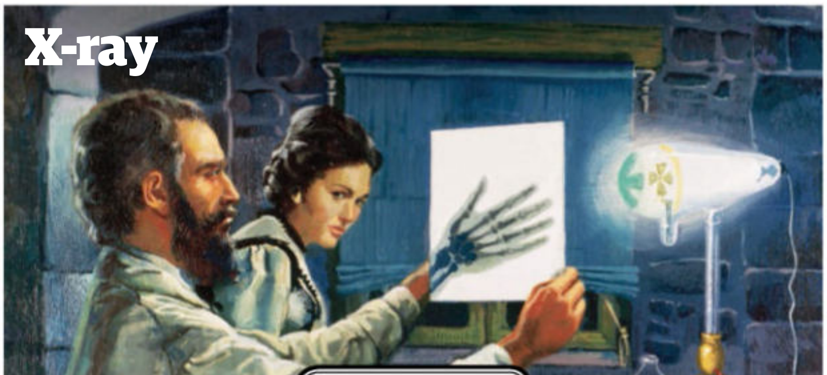
But it wasn't until the Victorian era that it went beyond a herbal folk medicine, as salicylic acid was made from the active ingredient in willow by French scientists. Further tweaking was needed, though, since it left many upset stomachs in its wake. German scientists created a more stable and palatable form in 1897 and aspirin was launched two years later. It took thousands of minds from across the world to develop this natural remedy and refine it into a potentially life-saving preventive tablet.

FARBENFABRIKEN vorm FRIEDR. BAYER & Co
250 gr
ELBERFELD.
ASPIRIN

DATE 1899

KEY INVENTORS
CHARLES FREDRIC,
FELIX HOFFMANN

X-ray



DATE 1895

KEY INVENTORS
WILHELM RÖNTGEN

Ever wondered what the 'X' in X-ray stands for? You might be disappointed to learn that even its inventor, German physicist Wilhelm Röntgen, didn't know. While experimenting by passing electrical currents through a cathode tube filled with a special gas, he discovered the tube produced a glow. It seemed he had discovered an invisible light that he didn't fully understand, so he called it 'X-radiation', because in maths, 'X' is used to represent an unknown value.

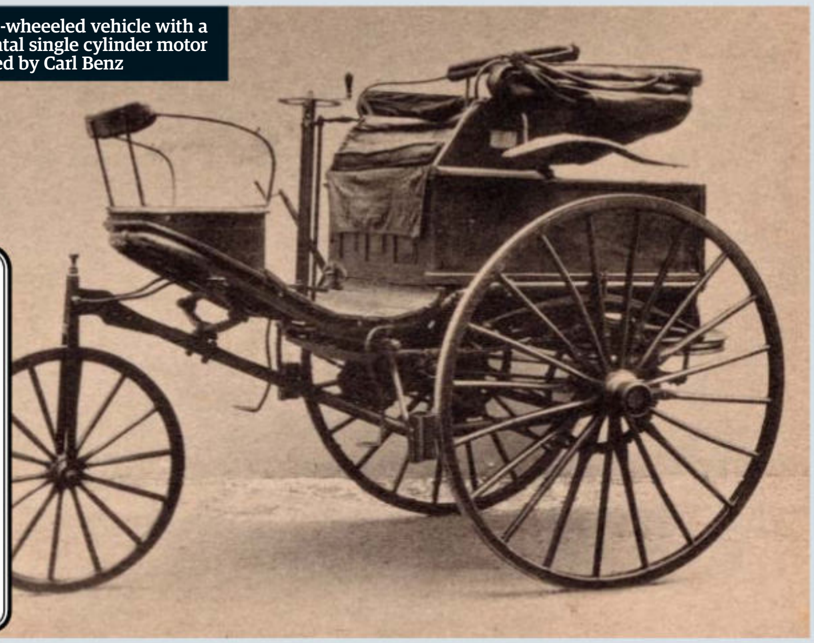
Röntgen didn't stop there, even drafting in his wife and producing the first X-ray photo of her hand. News travelled fast throughout the world, and scientists were soon able to replicate and refine X-ray images.

Röntgen's belief that scientific discoveries belonged to the world kept him from patenting his invention and the medical community embraced his discovery. Making fractures, bullets and foreign bodies visible for all to see, the X-ray transformed medicine. Röntgen shied away from his newfound fame, but his breakthrough was celebrated the world over and he was eventually awarded the first Nobel Prize in Physics.

Transportation

Automobile

Steam-powered automobiles had been developed in the late-18th Century, and in 1807 a French inventor patented a design for a car powered by an internal combustion engine. But the first truly 'modern' automobile was Karl Benz's Patent-Motorwagen. The three-wheeled vehicle had a single-cylinder four-stroke engine, which ran on petrol and produced about 2/3 horsepower at 250 rpm. Benz patented it in 1886, after which he unveiled his innovative new creation to the public. The 'horseless carriage' was written off as a fad; a dangerous weapon that would be a 'menace' to the streets. But in 1888, Benz's wife Bertha did something to change all that. Supposedly without her husband's knowledge, Bertha took the Motorwagen and embarked on a 194km-round trip from Mannheim to her hometown of Pforzheim, and in doing so carried out the first long-distance automobile journey. She had proved it fit for daily use, and so the Benz became the first 'production' vehicle.



A three-wheeeled vehicle with a horizontal single cylinder motor designed by Carl Benz

DATE 1886

KEY INVENTORS

KARL BENZ, ENRICO BERNARDI, FREDERICK LANCHESTER

Suspension bridge

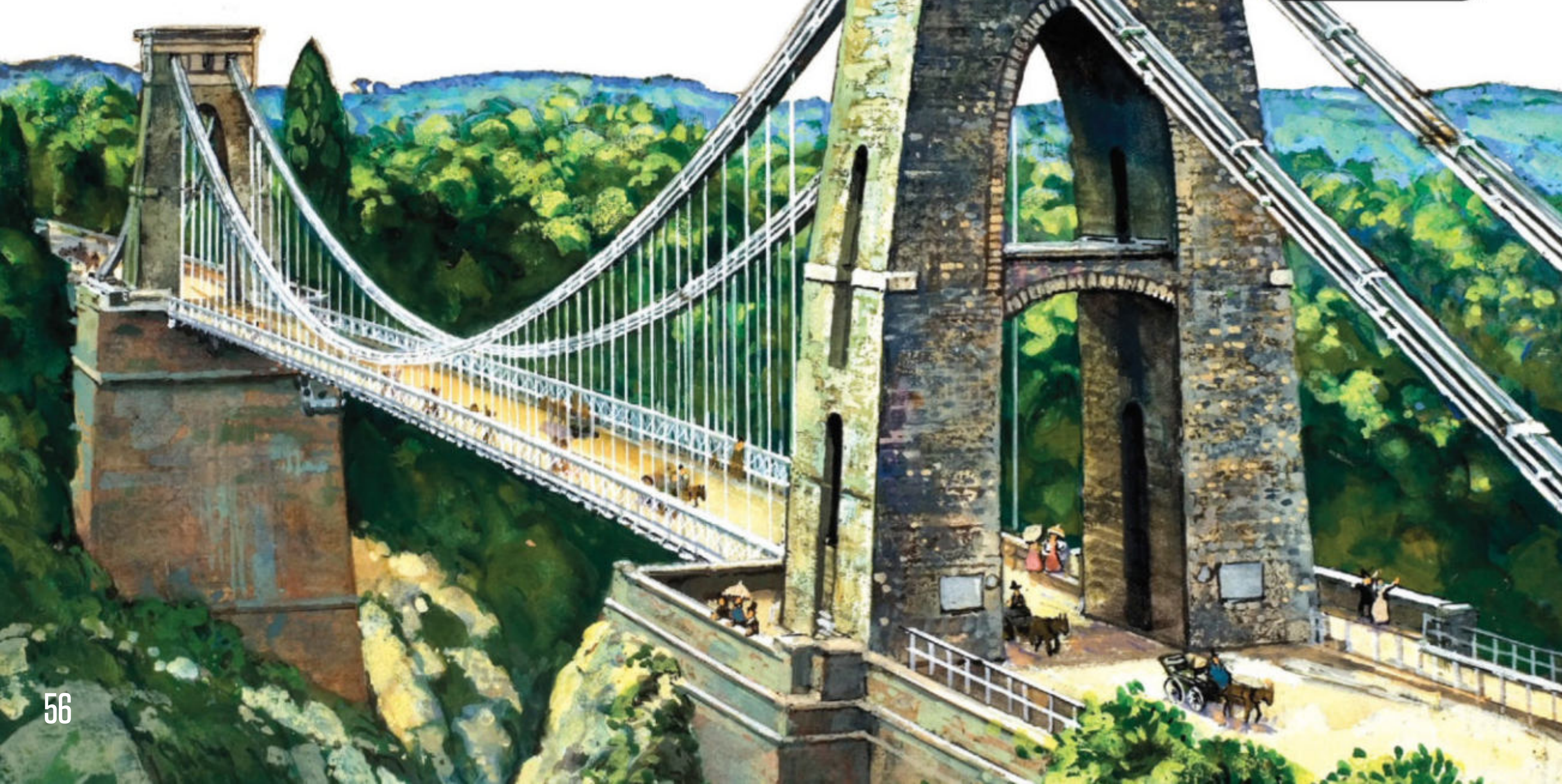
The famous inventor, designer and engineer Isambard Kingdom Brunel was a huge part of Britain's Industrial Revolution, building bridges, tunnels, railways, docks and ships. He changed the way people could travel and many of his designs still stand today, such as London's Paddington Station (1854) and the Clifton Suspension Bridge in Bristol.

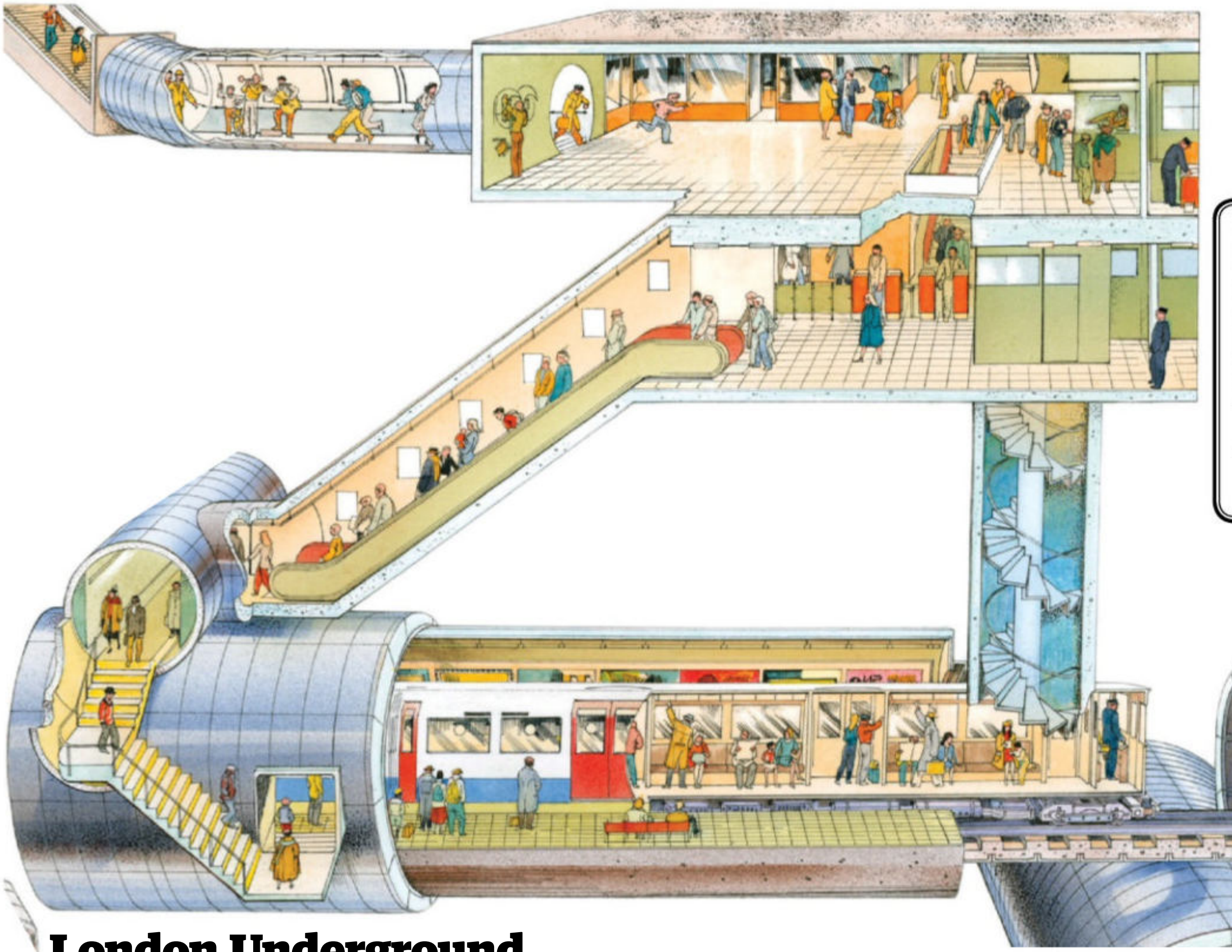
The latter was a wrought-iron marvel, linking Clifton in Bristol to Leigh Woods in North Somerset, England. It also marked Brunel's first commission. It was the earliest of its kind, high enough so that tall ships could sail beneath it and sturdy enough to provide safe passage for pedestrians and horse-drawn carriages. Unfortunately, due to the Bristol riots, the bridge wasn't built until after his death but this distinctive landmark served as a fitting memorial to the great man.

DATE 1864

KEY INVENTORS

ISAMBARD KINGDOM BRUNEL





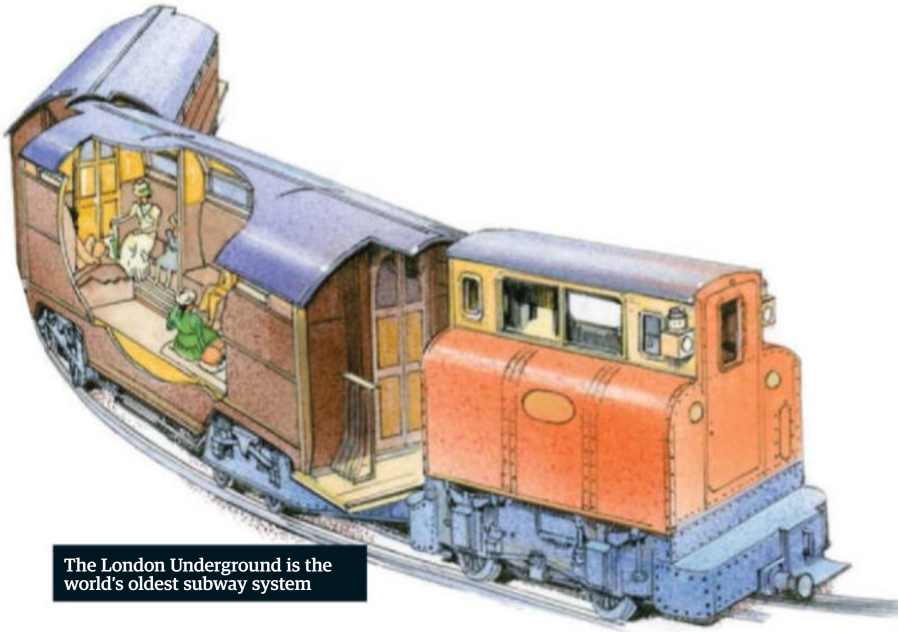
DATE 1863

KEY INVENTORS
CHARLES PEARSON

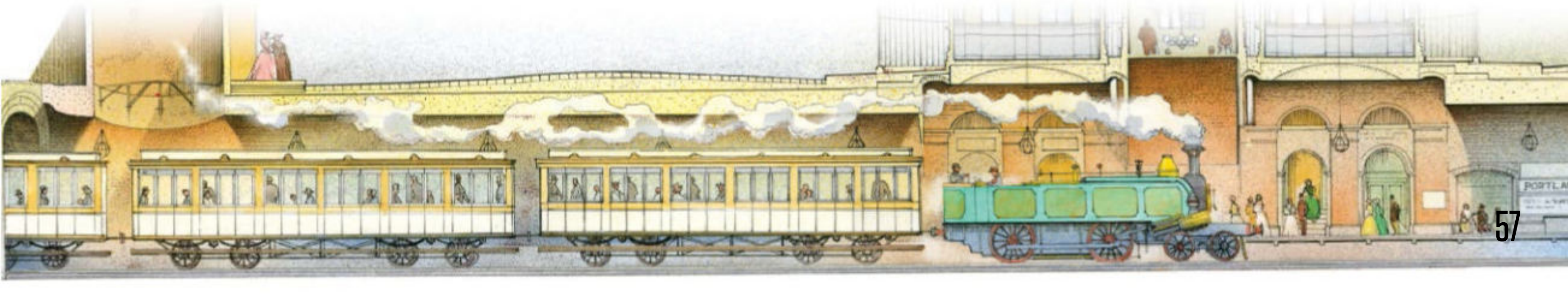
London Underground

Trains were a popular way to travel in the Victorian era, undercutting the cost of a horse-drawn carriage and beating it to the finish line, too. But the rise in Greater London's population meant the city was beginning to buckle under the strain of too many commuters and not enough transport links to get them where they needed to be. Then Charles Pearson proposed a plan to move everything underground, the so-called 'train in a drain', in 1845. It took some persuading but the House of Commons approved a bill in 1853 to build a subterranean railway from Paddington to Farringdon. It was over 150 years ago that the world's first underground train made its debut journey, with passengers anxious to experience it.

The Metropolitan was a huge success and 26,000 people hopped aboard each day in the first six months. However, it wasn't just the gap they had to mind, as commuters were enveloped in clouds of smoke from the steam trains and other passengers (smoking wasn't banned until after the King's Cross fire in 1987). The Underground continued to grow, reaching out to the then sleepy villages of Hammersmith and Morden and the transport links caused their modest populations to boom. Charles Pearson never lived to see his vision completed, having died a year before the Underground opened, but his legacy is everlasting.



The London Underground is the world's oldest subway system



Communication

Radio

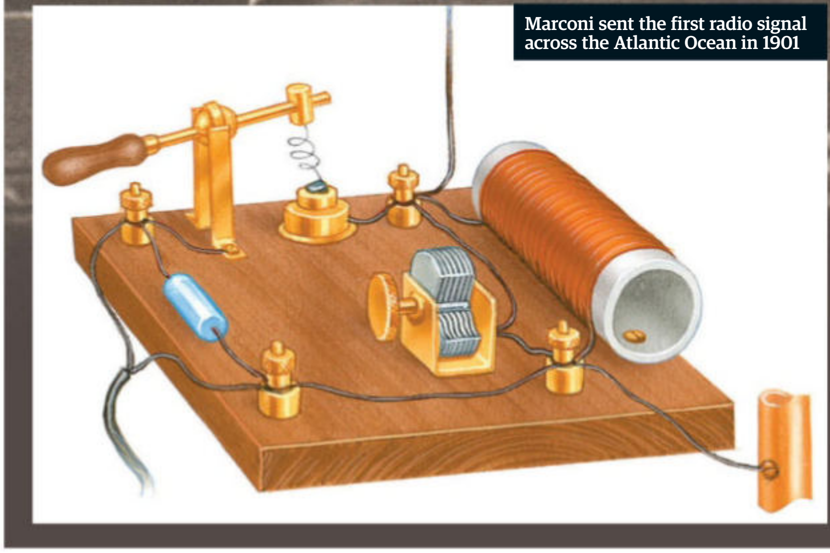
Italian inventor Guglielmo Marconi had heard about the existence of so-called radio waves that travel through the air and it made him wonder whether sound could travel the same way, via air waves.

He built two machines, one that could transmit messages and another that could receive them and managed to make a bell ring across the room using this method. Excited by his initial success, he worked on increasing the distance but no one wanted to invest to help him develop his machines, so he moved to Britain where his technology was welcomed by the army and the Post Office. He registered for a patent in 1901, then set about making a radio wave transmitter and a receiver to convert the waves into electricity, which then turned into sound. The first signals he was able to send were in Morse code, but this vital discovery would later develop the ability to transmit speech across long distances.

> "This vital discovery would later develop the ability to transmit speech"

DATE 1900

KEY INVENTORS
GUGLIELMO MARCONI



Marconi sent the first radio signal across the Atlantic Ocean in 1901

Victoria was the first British monarch to be photographed

DATE 1884

KEY INVENTORS
GEORGE EASTMAN

Photographic film

The Victorians enjoyed taking photographs of their loved ones, whether alive or even post-mortem. The technology quickly developed from the earliest camera in 1826 and Queen Victoria became the first British monarch to have her photograph taken. For a long time it was an expensive and laborious process but one man set out to make the camera "as convenient as the pencil".

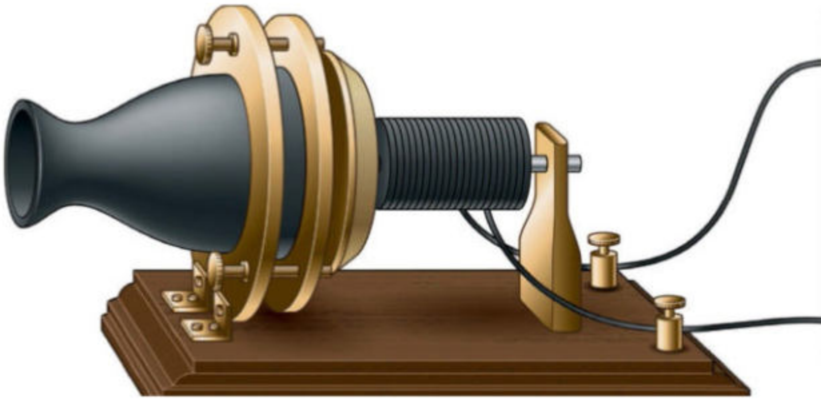
American entrepreneur and keen photographer George Eastman invented paper-based photographic film and a roll holder, which made it possible for people to capture candid photos quickly. By 1901 he had founded the Eastman Kodak Company and developed the Kodak Brownie, a camera that everyday people could afford to own. This film helped develop the motion picture industry and it was the first company to produce photography kits for the masses. Kodak still exists today, but sadly it has shifted its focus from cameras to printers.

Telephone

Some of the greatest inventions known to man were made completely by accident and Alexander Graham Bell's breakthrough was no different. While experimenting with electro-audio stimulation, he used two springs connected by a long piece of wire. He gave one end to his assistant, Thomas Watson, and he held the other in a different room.

The idea was that when one spring was moved, the other would too, but actually what happened was that the sound of the spring moving travelled down the wire and was heard at the other end. This device struggled to carry the sound of their voices, but Bell knew he had something, so quickly registered for a patent to stop others from using the same idea. Only two hours after Bell had submitted his request, another inventor had tried to register the same patent but was too late and the fame would forever belong to Bell.

> "Bell knew he had something, so quickly registered for a patent to stop others from using the same idea"



DATE 1876

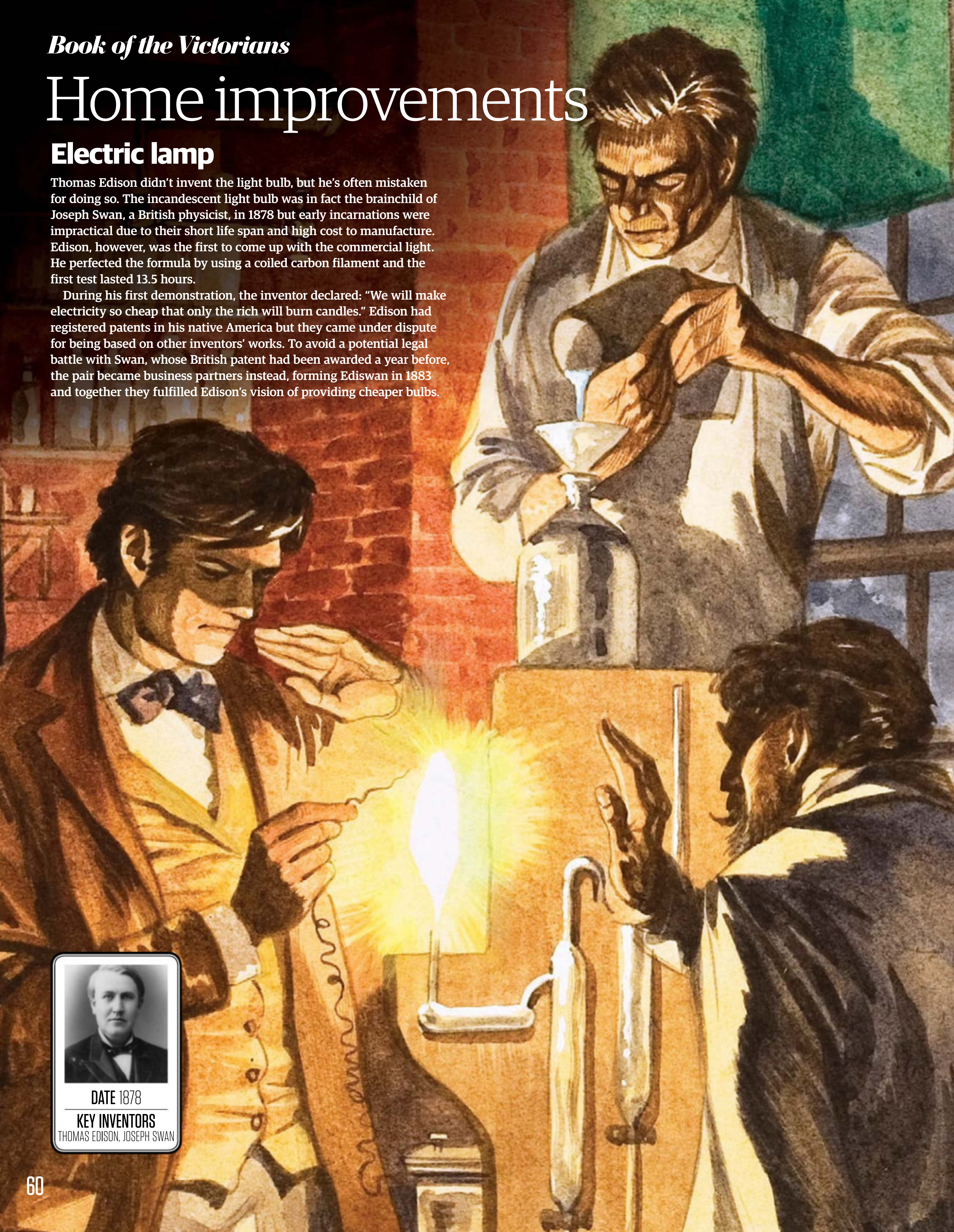
KEY INVENTORS
ALEXANDER GRAHAM BELL

Home improvements

Electric lamp

Thomas Edison didn't invent the light bulb, but he's often mistaken for doing so. The incandescent light bulb was in fact the brainchild of Joseph Swan, a British physicist, in 1878 but early incarnations were impractical due to their short life span and high cost to manufacture. Edison, however, was the first to come up with the commercial light. He perfected the formula by using a coiled carbon filament and the first test lasted 13.5 hours.

During his first demonstration, the inventor declared: "We will make electricity so cheap that only the rich will burn candles." Edison had registered patents in his native America but they came under dispute for being based on other inventors' works. To avoid a potential legal battle with Swan, whose British patent had been awarded a year before, the pair became business partners instead, forming Ediswan in 1883 and together they fulfilled Edison's vision of providing cheaper bulbs.



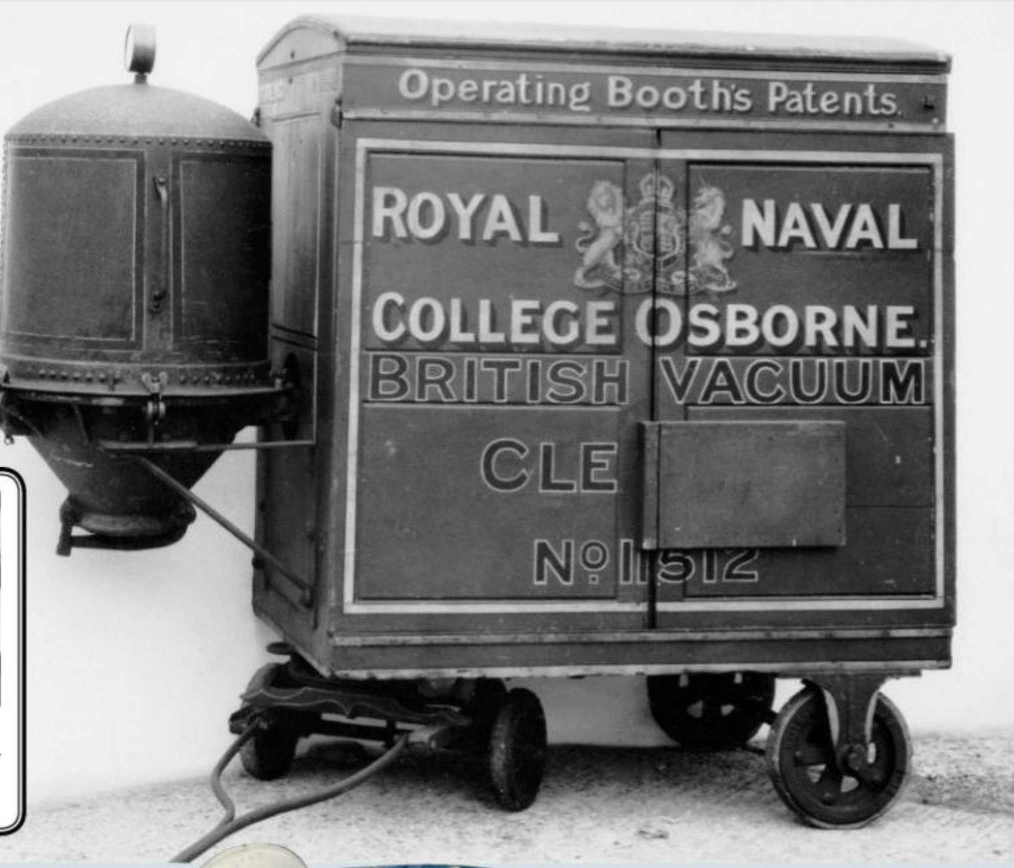
DATE 1878

KEY INVENTORS
THOMAS EDISON, JOSEPH SWAN

Vacuum cleaner

Hubert Booth's light bulb moment came when he observed an American's new cleaning invention that blew out air. He thought it would be far more efficient if the contraption sucked in air instead and the idea evolved into the vacuum cleaner, a device that almost every household in the modern world couldn't be without. What made Booth believe that he was really onto something was when demonstrating to friends at a posh London restaurant. He placed his handkerchief on the velvet seat of his chair and inhaled as hard as he could, before coughing and spluttering because of all the dust that had come out of the cushion. The handkerchief didn't fare so well either, as Booth and his friends discovered that it was now filthy.

An invention was born, but far from the slender pieces of equipment we have nowadays, this vacuum cleaner was so cumbersome it had to be drawn by a horse and cart. This was because most Victorian houses didn't have electricity so Booth's machine got its power from coal or oil. It would park outside a house and an extra-long hose would snake in through the windows, ridding homes of years and years of accumulated dust.



DATE 1901

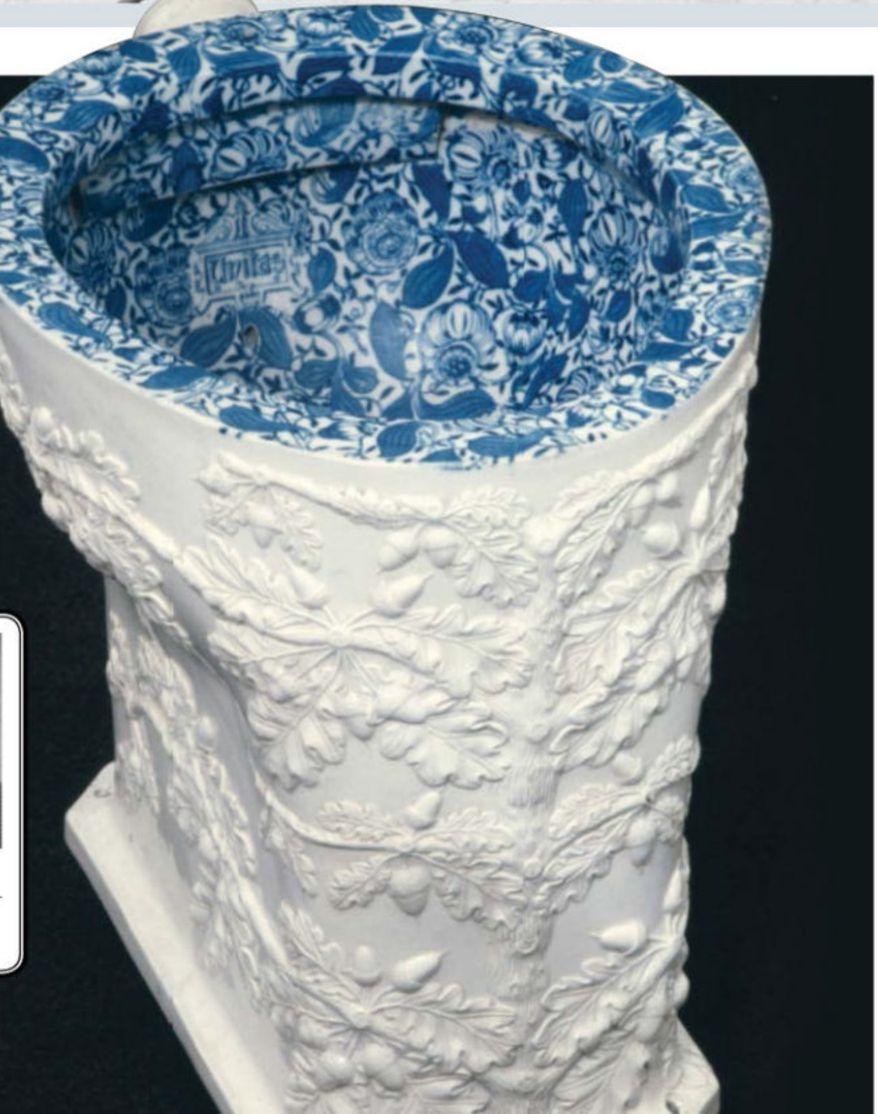
KEY INVENTORS
HUBERT BOOTH

Flushing toilet system

Many inventions are born out of a need to fix a problem and using an earth closet was enough to drive several inventors to work on a solution. This primitive lavatory, or 'privy', was simply a wooden bench with a hole cut out and a bucket underneath, where dry earth was used to cover waste. Naturally, they were pretty whiffy and most privies could be found at the bottom of the garden for this very reason, while chamber pots were used in the house for any night-time emergencies. It was hardly fit for a queen, but Queen Victoria did indeed use an earth closet at Windsor Castle.

In 1852, a successful, state-of-the-art loo arrived when pottery manufacturer Thomas Twyford invented the first flushing toilet. It was made of china instead of wood or metal, but the design wasn't entirely original, having been based on the attempts of inventor JG Jennings, yet Twyford was hailed as a pioneer in hygiene.

"Queen Victoria did indeed use an earth closet at Windsor Castle"



DATE 1852

KEY INVENTORS
THOMAS TWYFORD

© Look and Learn; Alamy; Thinkstock; Getty

Inside the Great Exhibition

Championed by Prince Albert, the 1851 Great Exhibition flaunted the Empire's trade wins and industrial marvels

An international showcase of spectacular scale, the Great Exhibition displayed produce from around the world, from great woven textiles to the most intricate embellished golds. With over 6 million visitors - including Queen Victoria herself - the event was phenomenally successful.

Housed in a purpose-built giant glasshouse (which came to be nicknamed the Crystal Palace), the Exhibition was based on a French equivalent held several years previously, known as the Industrial Exposition of 1844. While the government was initially uninterested, the concept aroused public support as well as that of Prince Albert. After increasing pressure, the government were swayed and a competition was organised to design a building that could house such an event. The Crystal Palace design won and was soon erected in Hyde Park.

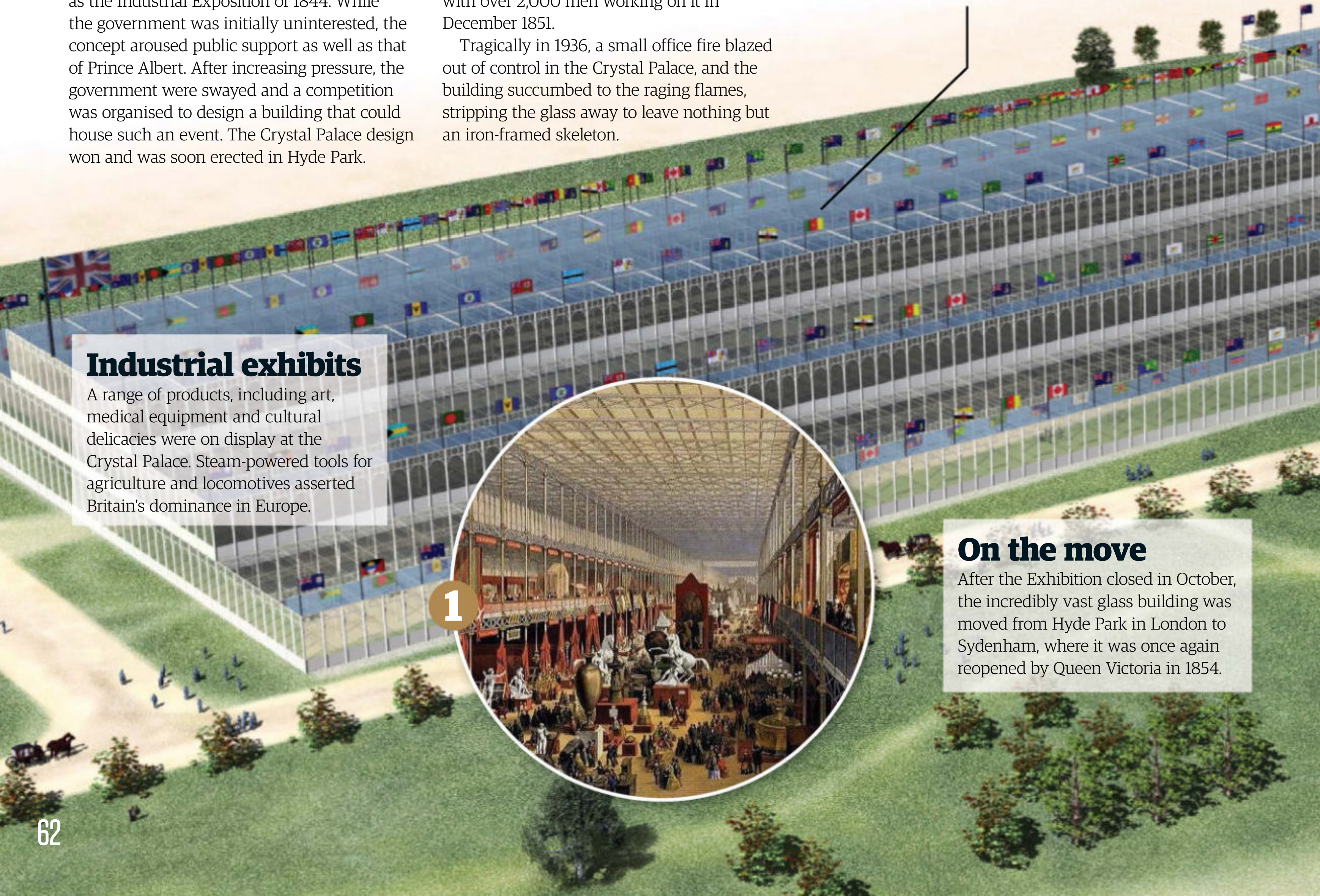
Taking less than a year to build, the Crystal Palace marked some serious advances in architecture and industry. Considered one of the first pre-fabricated buildings, the glass was created in advance, meaning it simply slotted into the iron skeleton when the sheets arrived.

The Exhibition was a roaring success for Britain, providing an unrivalled sense of national pride, as well as asserting Britain's dominance over the rest of the world. It was also an incredible employment opportunity, with over 2,000 men working on it in December 1851.

Tragically in 1936, a small office fire blazed out of control in the Crystal Palace, and the building succumbed to the raging flames, stripping the glass away to leave nothing but an iron-framed skeleton.

① International exhibits

Only around 50 per cent of the exhibits were from Britain, with the remainder brought in from around the world. India sent emeralds and rubies, as well as an ornate howdah and trappings for elephants (though the stuffed elephant that wore these at the exhibition was borrowed from a museum), while France sent tapestries and silks, as well as the machines that weaved the fabrics. Russia sent furs, Switzerland sent watches, and Chile sent a giant lump of gold.



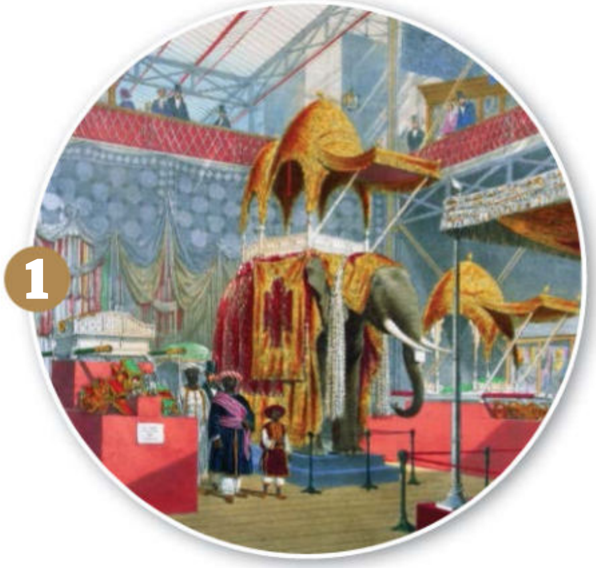
Industrial exhibits

A range of products, including art, medical equipment and cultural delicacies were on display at the Crystal Palace. Steam-powered tools for agriculture and locomotives asserted Britain's dominance in Europe.

On the move

After the Exhibition closed in October, the incredibly vast glass building was moved from Hyde Park in London to Sydenham, where it was once again reopened by Queen Victoria in 1854.

> "The Crystal Palace marked some serious advances in architecture and industry"

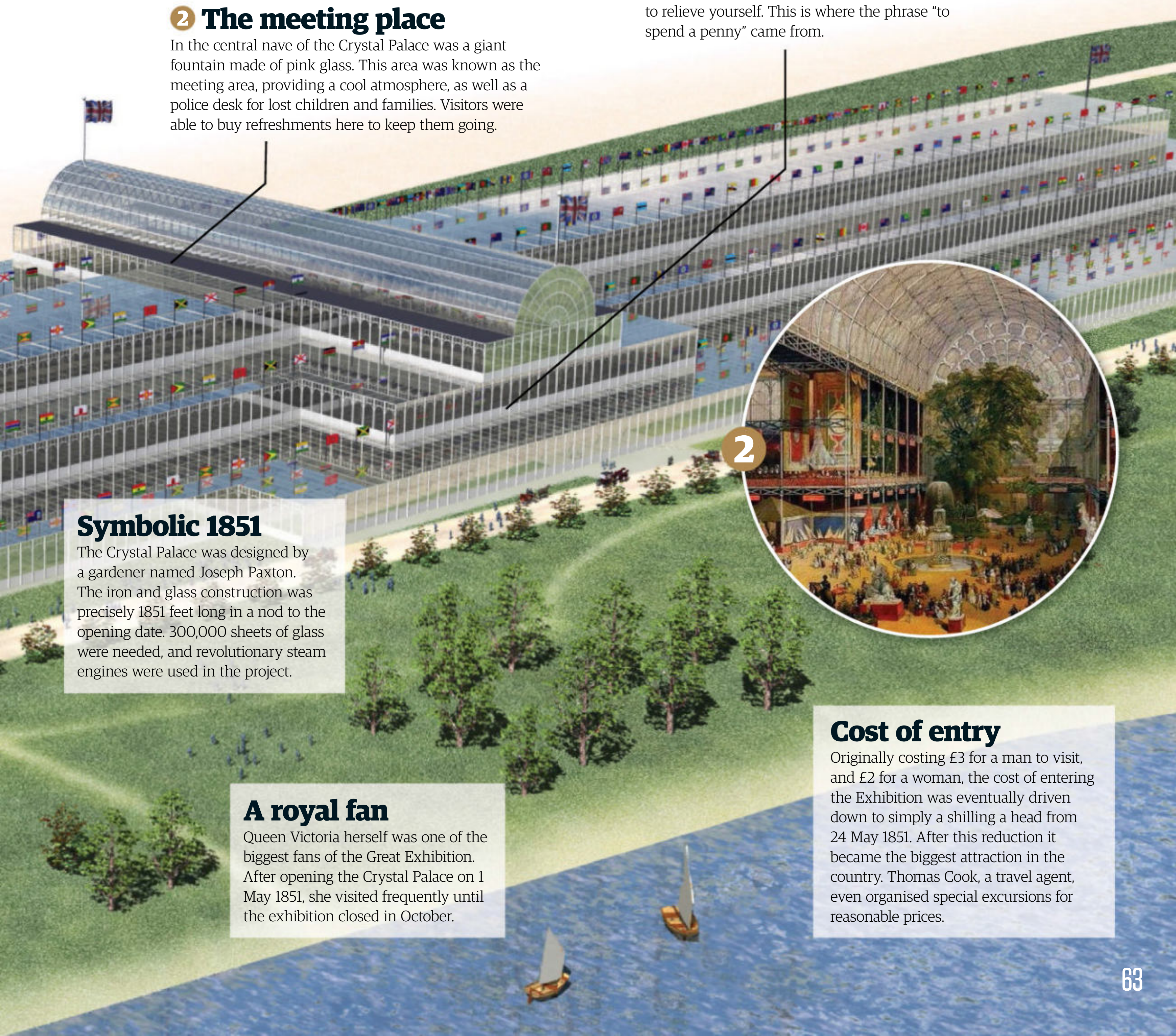


② The meeting place

In the central nave of the Crystal Palace was a giant fountain made of pink glass. This area was known as the meeting area, providing a cool atmosphere, as well as a police desk for lost children and families. Visitors were able to buy refreshments here to keep them going.

The first public loo

The Crystal Palace housed the first public toilets, known as waiting rooms and conveniences. If you were happy to spend a little cash, you'd get a private cubicle in which to relieve yourself. This is where the phrase "to spend a penny" came from.



Symbolic 1851

The Crystal Palace was designed by a gardener named Joseph Paxton. The iron and glass construction was precisely 1851 feet long in a nod to the opening date. 300,000 sheets of glass were needed, and revolutionary steam engines were used in the project.

A royal fan

Queen Victoria herself was one of the biggest fans of the Great Exhibition. After opening the Crystal Palace on 1 May 1851, she visited frequently until the exhibition closed in October.

Cost of entry

Originally costing £3 for a man to visit, and £2 for a woman, the cost of entering the Exhibition was eventually driven down to simply a shilling a head from 24 May 1851. After this reduction it became the biggest attraction in the country. Thomas Cook, a travel agent, even organised special excursions for reasonable prices.

Ada Lovelace

This unusual countess was one of the most influential figures in the history of technology, and one you have most likely never heard of

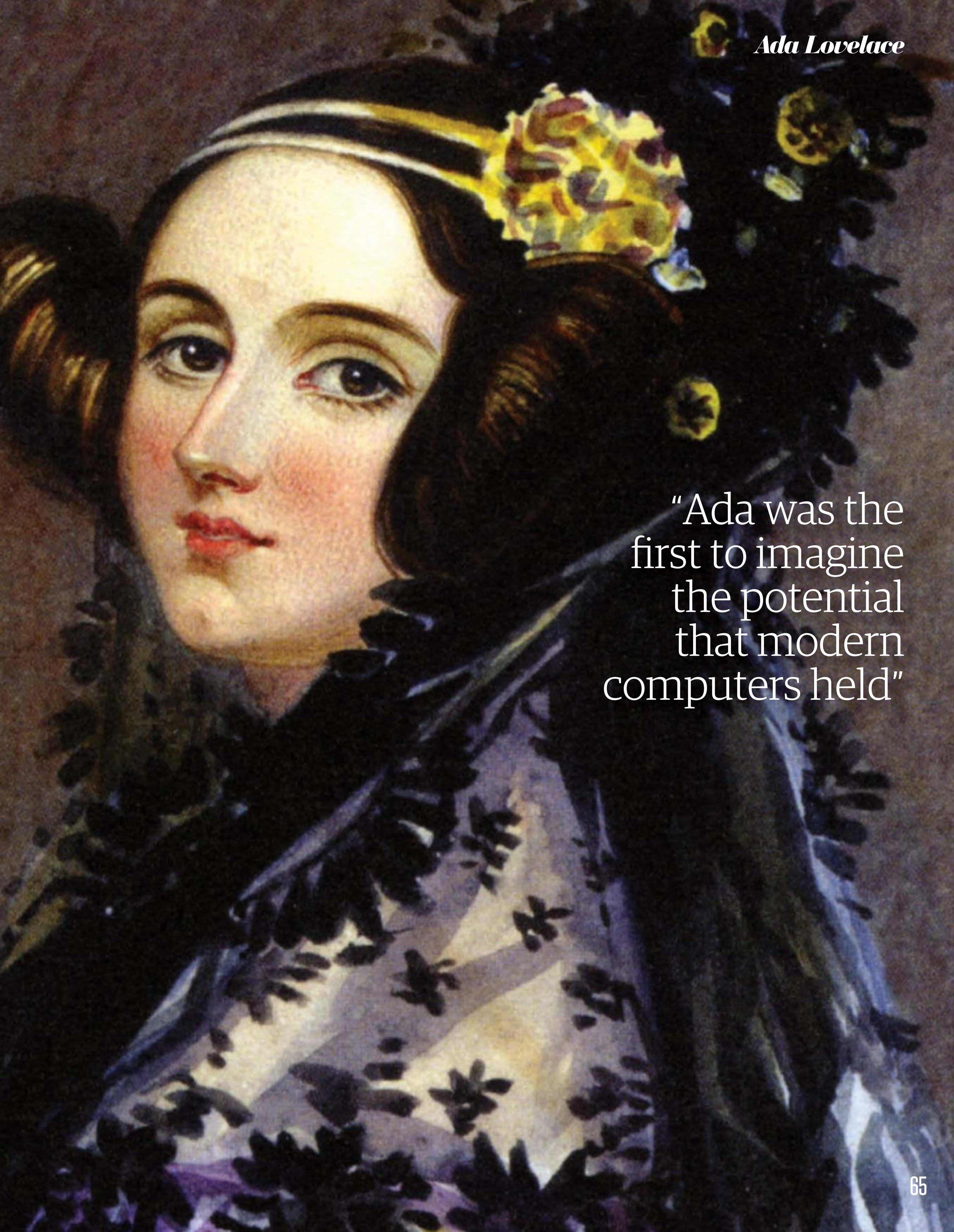
That the world's first computer programmer was a Victorian woman is remarkable in itself, but that she was the daughter of one of literature's most well-known poets adds such colour to the story it is difficult to understand how it isn't more widely known. Ada Lovelace is not a name that draws the same reverence or even recognition as the likes of Alan Turing, Charles Babbage or Tim Berners-Lee – all undeniable innovators in technology. Yet she was the first to imagine the potential that modern computers held. Her predictions so accurately reflected the events of the technological revolution that she is seen by many as a visionary and even, by some, a prophet.

Understanding Ada's ancestry and childhood is key to discovering how this unlikely historical figure played her part in the creation and proliferation of the computer. Her mother, Anne Isabella 'Annabella' Byron, didn't want her daughter to grow up to be like her father, the eminent poet Lord Byron. He was tempestuous and prone to mood swings – the true picture of a popular poet. Annabella was terrified Ada would inherit her father's instabilities – a fear that would prove to be not entirely unfounded. As such, it was upon Annabella's insistence that her daughter be brought up completely under her control, as she was able to apply logic and was certainly not preoccupied with sensation and emotions in the same way as her husband, Ada's father.

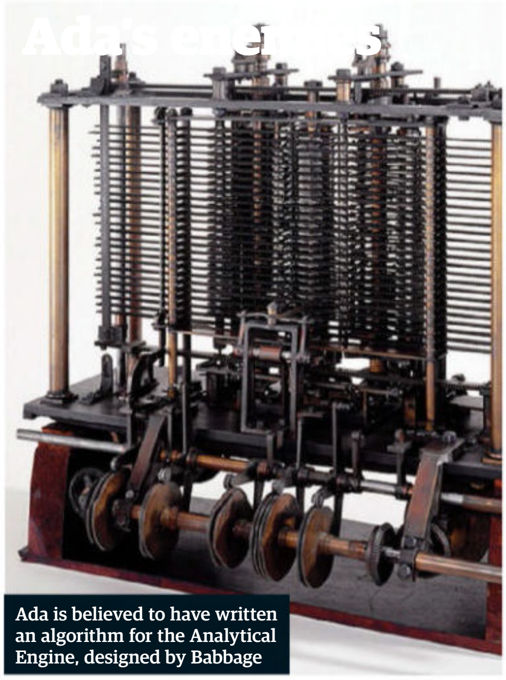
Ada's mother forbade her from seeing a portrait of her father, Lord Byron, until she was 20 years old

If flights of fancy were Annabella's concern, there were signs early in Ada's life that these tendencies had not been entirely suppressed. At the age of 12, Ada was already developing a curious scientific mind and became obsessed with the idea of learning to fly. In the hope of achieving this lofty ambition, Ada undertook extensive and methodical research into materials that could be used to make effective wings and examined birds and insects for further inspiration. She gathered her findings in a volume and named it *Flyology*. At first, Annabella encouraged her daughter's enthusiasm for research and science, but as the obsession took hold, Ada was forced by her mother to abandon her project.

Annabella's insistence on her daughter's upbringing being firmly rooted in logic was most likely inspired by her own interest in mathematics. This manifested itself in many – occasionally odd – ways. Part of Ada's 'education' was to observe the task of lying still for hours on end, an activity designed to teach 'self control'. Annabella was not a particularly maternal force, referring to Ada in letters as "it", and leaving Ada in the care of her grandmother, Lady Judith Millbanke. However, Judith died when Ada was six years old, and from then on her guardianship was covered



“Ada was the first to imagine the potential that modern computers held”



Ada is believed to have written an algorithm for the Analytical Engine, designed by Babbage

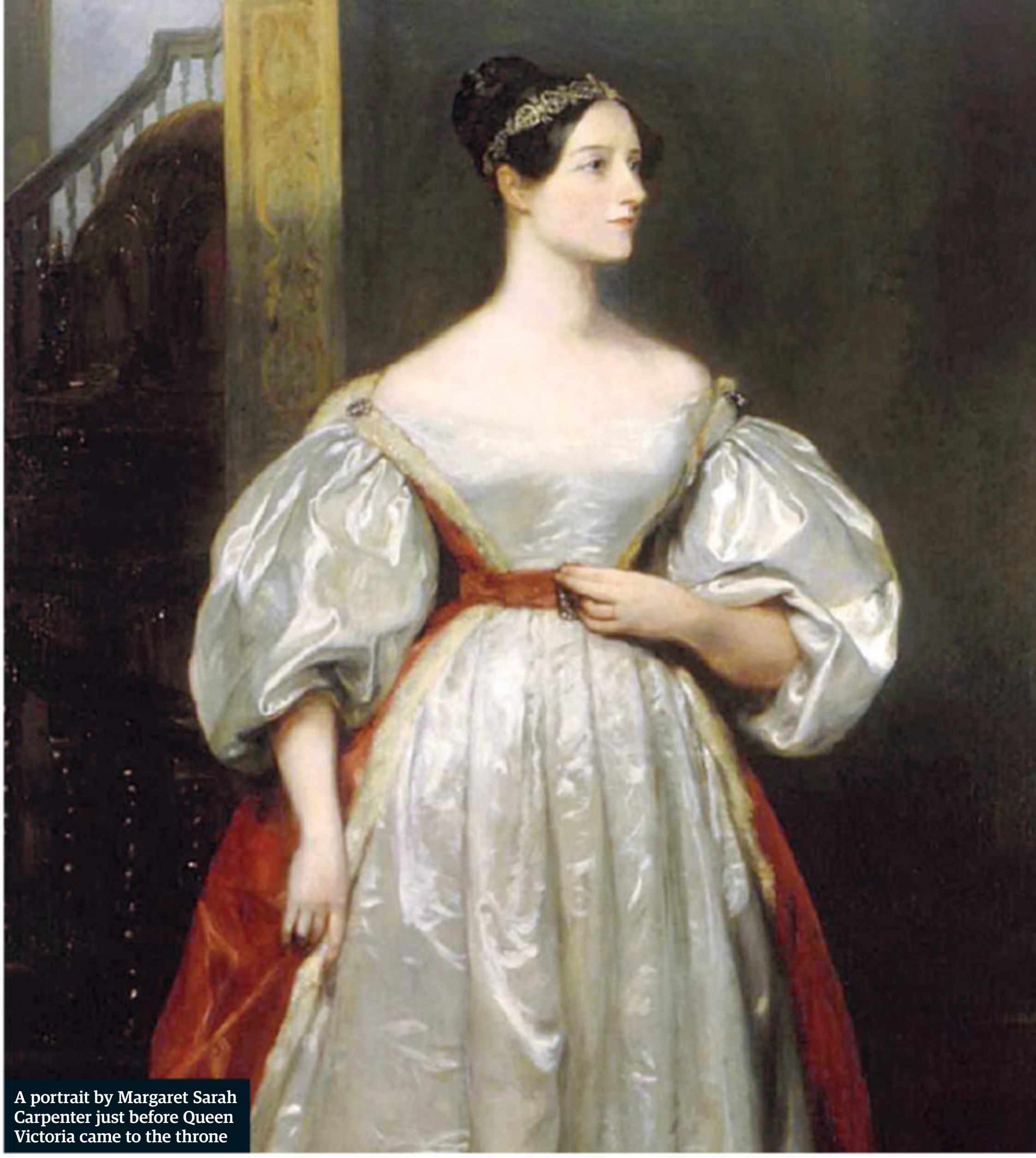
by various nannies, and later, tutors, who had been chosen and approved by Annabella.

Lord Byron, Ada's father, had left two months after her birth for a life in Italy. His marriage to Annabella had ended abruptly, in a slew of scandalous rumours of affairs between Byron and a chorus girl, myriad financial troubles and rumoured violence and abuse. After travelling to Italy, where he stayed with Percy Bysshe and Mary Shelley, Byron's final years were spent in Greece, where he had joined the forces fighting for independence from the Ottoman Empire. It was here that he died in 1824, when Ada was just eight years old. The two never met.

While the mathematical passions of her mother meant Ada had endured some unorthodox methods in her upbringing, it also meant that she received an extraordinary gift, one rare for women in the 19th Century: a comprehensive mathematical education. Ada's tutors were a diverse group of academics, reading as a 'who's who' of early to mid-19th Century intellectuals. Among the most notable were William Frend, a renowned social reformer and William King, the family's doctor. Perhaps most notable was Mary Somerville, a female mathematician and astronomer.

Five years after her obsessive research into flight, Ada met a man who would prove integral to her life, particularly her intellectual pursuits. Charles Babbage was a technological innovator and creator of the Analytical Engine, which is the device generally considered to have been the first computer. At the time of meeting, Babbage was 42 and, despite an age gap of more than 20 years, a friendship would grow between them. It was a friendship that would provide them with comfort and intellectual stimulation, and provide the world with its most revolutionary invention yet: the computer.

Babbage had been working under commission from the British government on a machine called the Difference Engine, but the Analytical Engine was something far more complex. Where the Difference Engine was essentially a calculator designed to eliminate inaccuracies by fallible humans, the Analytical Engine could perform more complex calculations, stretching far beyond numbers. This was the first time any such machine had been conceived, let alone designed.



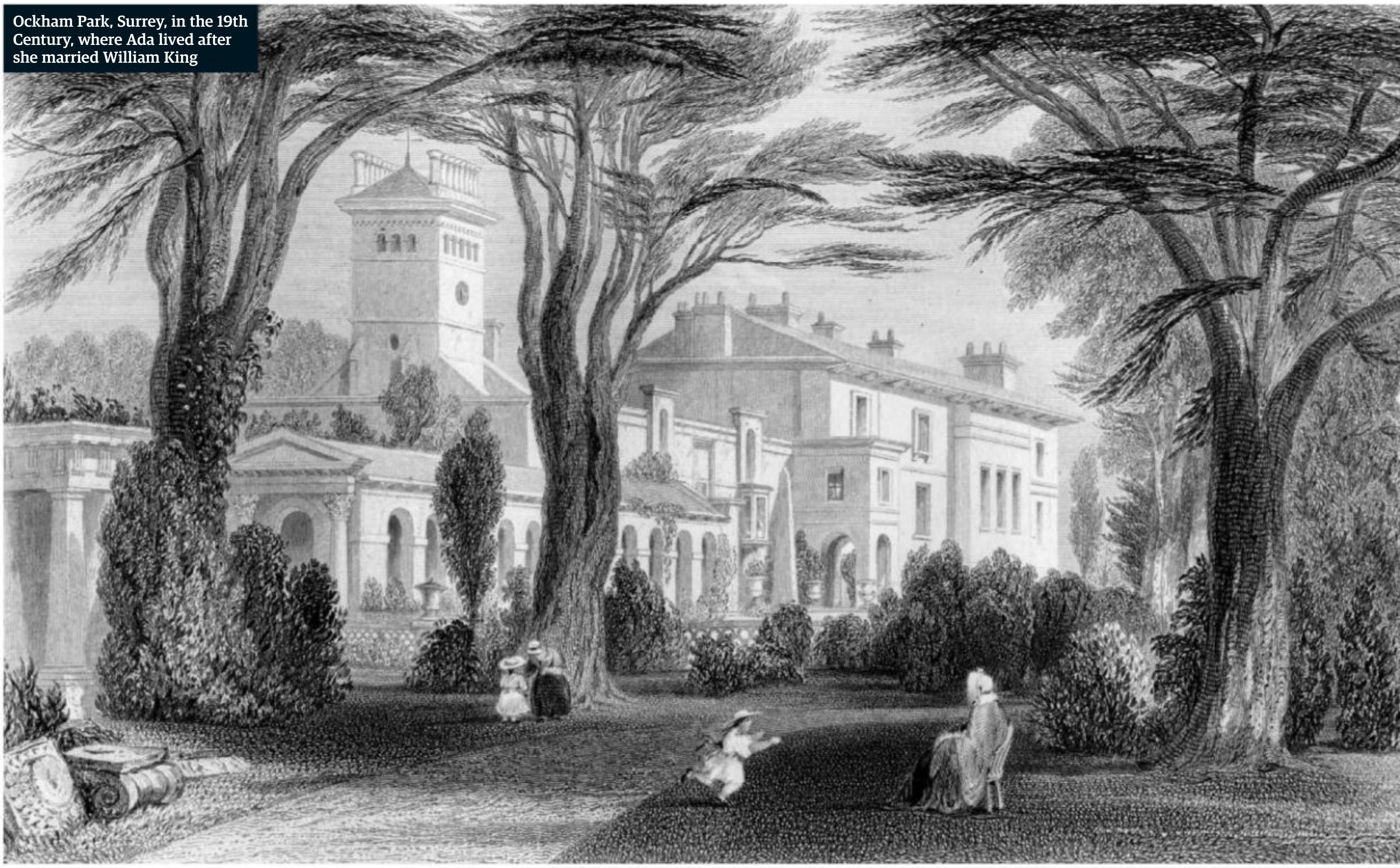
A portrait by Margaret Sarah Carpenter just before Queen Victoria came to the throne

> "Ada was already developing a curious scientific mind and became obsessed with the idea of learning to fly"

Babbage couldn't secure funding for his research into the new machine, but his determination to progress the Analytical Engine spurred him on until he eventually found a sympathetic reception in Italy. In 1842, an Italian mathematician named Luigi Menabrea published an essay on the function of the machine. The text was in French, and Ada's talent for languages coupled with her mathematical understanding made her the perfect candidate to translate the document for Babbage. She did so over the course of nine months, but while the memoir was valuable, it paled in comparison to Ada's additions, which Babbage had suggested she should add in as she saw fit.

The notes that Ada made alongside the document were ground-breaking. They exceeded the document she had translated, not just in length, but in depth and insight. One of the most quoted phrases, "the Analytical Engine weaves algebraic patterns just as the Jacquard loom weaves flowers and leaves," is a particularly feminine turn of phrase, strategically plucked from a much more lengthy, as well as technical, comparison of the machine to the Jacquard loom. In fact, most of Ada's additions are purely scientific, of a tone that wouldn't be out of place in a modern-day programming textbook. For example, she wrote: "When the value on any variable is called into use, one of two consequences may be made to result."

Ada also used the example of the complex numerical sequence known as Bernoulli numbers to prove the ability of the machine to calculate complex sequences from an original program. Detractors have used this against Lovelace, taking it as proof that the observations expressed in her notes weren't


Ockham Park, Surrey, in the 19th Century, where Ada lived after she married William King

truly hers, but simply a relaying of information given to her by Babbage. Indeed, Ada did not have a full understanding of calculus, but even if Bernoulli numbers were the suggestion of Babbage, the principle of her assumptions remained the same. It was the insight for potential in her translation of this document that earned Countess Lovelace the moniker of the 'World's First Computer Programmer'.

In her own words, Ada saw herself foremost as an "analyst and metaphysician," but while her scientific prowess earned her a place in history, she lived a generally unremarkable domestic life. In 1835, two years after her first meeting with Babbage, Ada married William King, 8th Baron of King, later to become the Earl of Lovelace. Ada and William would go on to have three children, with the first, Byron, being born in May 1836. Two siblings followed shortly: Anne in September 1837 and Ralph in July 1839.

> On Artificial Intelligence, Ada concluded that computers could never have original thoughts

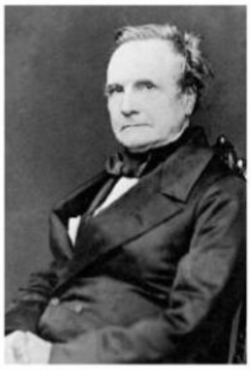
Ada suffered with health problems, both mentally and in the form of physical sicknesses, including a bout of cholera, from which she recovered. Ada's mother's influence extended into her adult life as she held William and the family in her financial thrall. As a consequence, they lived on her terms. This, combined with William's sometimes controlling, even abusive, character, was at odds with Ada's friendly and fiercely independent nature. Affairs were rumoured, one in particular with the tutor to Ada's children, William Benjamin Carpenter, but there is no evidence that she ever embarked on an extra-marital relationship.

Ada died of uterine cancer at just 36, the same age at which her father had died, and was out-lived by her mother.

In the years following her death, incredible advances were made in the various fields of technology that rendered her prophecies remarkably accurate. Though her authorship has been questioned, her findings proved an invaluable influence on Alan Turing's work in the mid-20th Century, having been and re-published at that time.

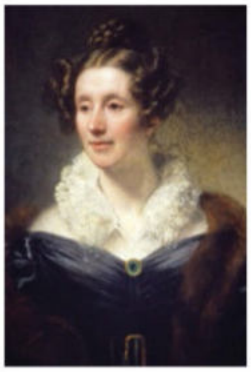
Her legacy continues and is remembered in the form of Ada Lovelace Day, observed annually on 15 October. The day has the aim of raising awareness for women in science. Ada was an unusual person in so many ways, and a remarkable one, and she continues to inspire those who feel that they must defy expectation to follow their passions.

Contemporaries



Charles Babbage

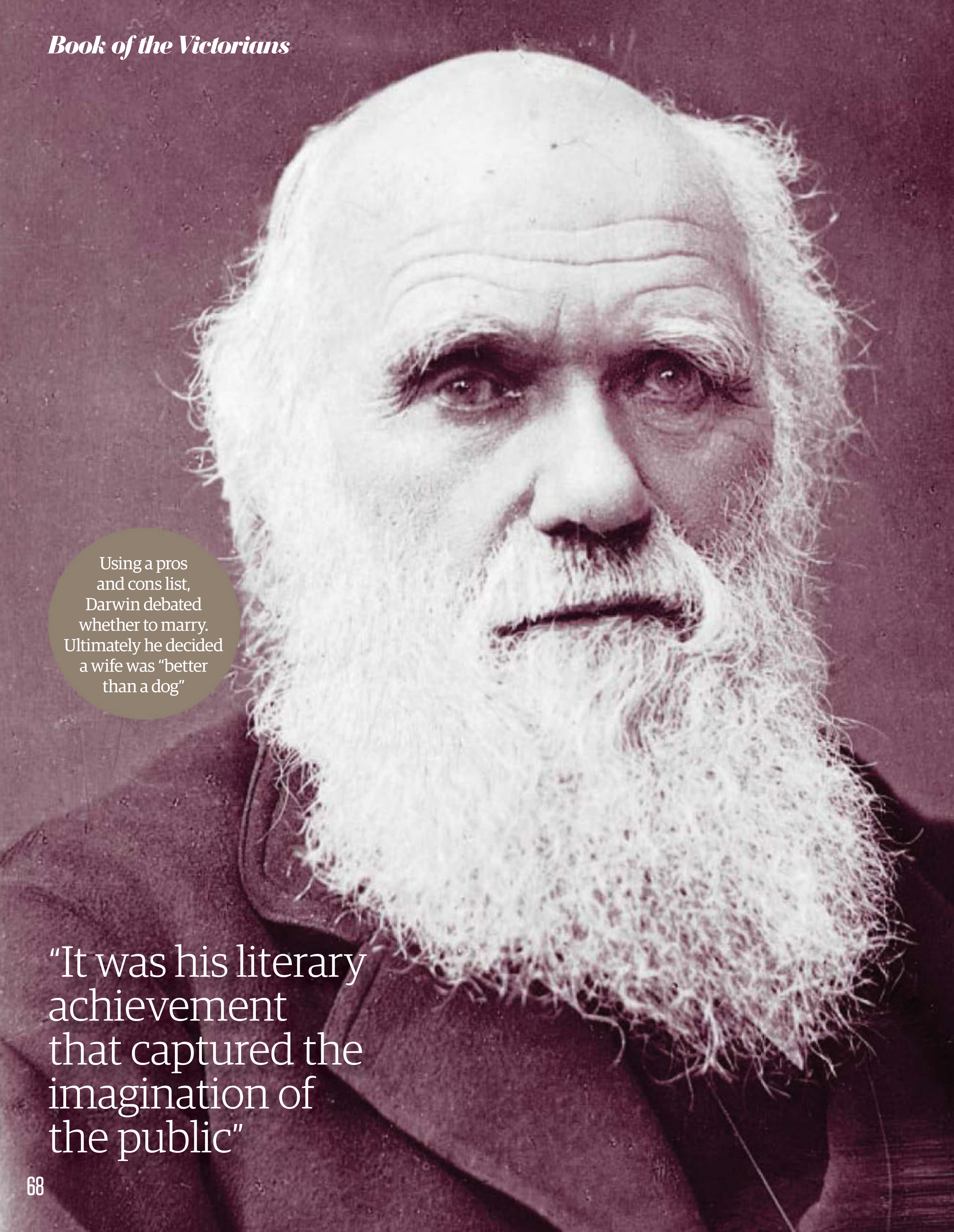
Ada was introduced to the polymath when she was 17 and they began a lifelong friendship. Babbage called her an "enchantress of numbers that has thrown her magical spell around the most abstract of sciences and has grasped it with a force that few masculine intellects could have exerted over it."



Mary Somerville

A fellow scientist and mathematician, Somerville mentored Ada when she was a child and the young countess developed a strong respect and affection for her. They continued their correspondence right up until Ada's death in 1852, at the age of 36.

© Alamy, Getty Images



Using a pros and cons list, Darwin debated whether to marry. Ultimately he decided a wife was "better than a dog"

"It was his literary achievement that captured the imagination of the public"

Charles Darwin

In a time when the Church ruled the roost, Darwin's theory of evolution shook Victorian society to its core

Science and religion aren't known for going hand in hand, and Charles Darwin's revolutionary ideas about evolution widened the divide between the two, sparking controversy at a time when religion was paramount in people's lives. Renowned for his theory of evolution, Darwin's beliefs contradicted the Victorian belief in God's divine creation. While many clergymen branded Darwin a blasphemer, however, his ideas were quickly accepted by many, going on to form the basis of natural science as it is today.

Born on 12 February 1808, Charles Darwin was raised in a wealthy, liberal-minded family. Despite being brought up with Christian morals and teachings, he was encouraged to push himself and explore his own ideas. With two grandfathers of significance, it was little wonder that the young Darwin was so curious.

> Darwin didn't coin the phrase 'survival of the fittest' – he was only quoting economist Herbert Spencer

His paternal grandfather, Erasmus Darwin, who had died several years before the young Darwin's birth, had been a physician of great reputation – he was offered the position of Royal Physician, but turned it down. What made Erasmus so notorious, however, were his ideas about transmutation, which preceded Charles Darwin's similar theory of evolution. However, Erasmus's suggestion of transmutation wasn't received well and he was criticised for denouncing his creator, God.

Intending to follow in his father and grandfather's footsteps, Charles Darwin decided to pursue medicine at university in 1825 and moved to Edinburgh to study. However, after watching surgeries performed without any kind of sedative, he soon realised that the discipline wasn't for him and his sensitive stomach. Despite this, Edinburgh turned out to be the ideal place for Darwin to cultivate his liberal ideas; the city was filled with radicals who debated outrageous and revolutionary theories that would never be tolerated in Oxford or Cambridge.

The open-mindedness of Edinburgh couldn't hold Darwin, however, and in 1827 he moved to Cambridge University to study divinity, with the intention of becoming a clergyman. While he wasn't particularly passionate about it, his course enabled him to pursue his real love – collecting beetles.

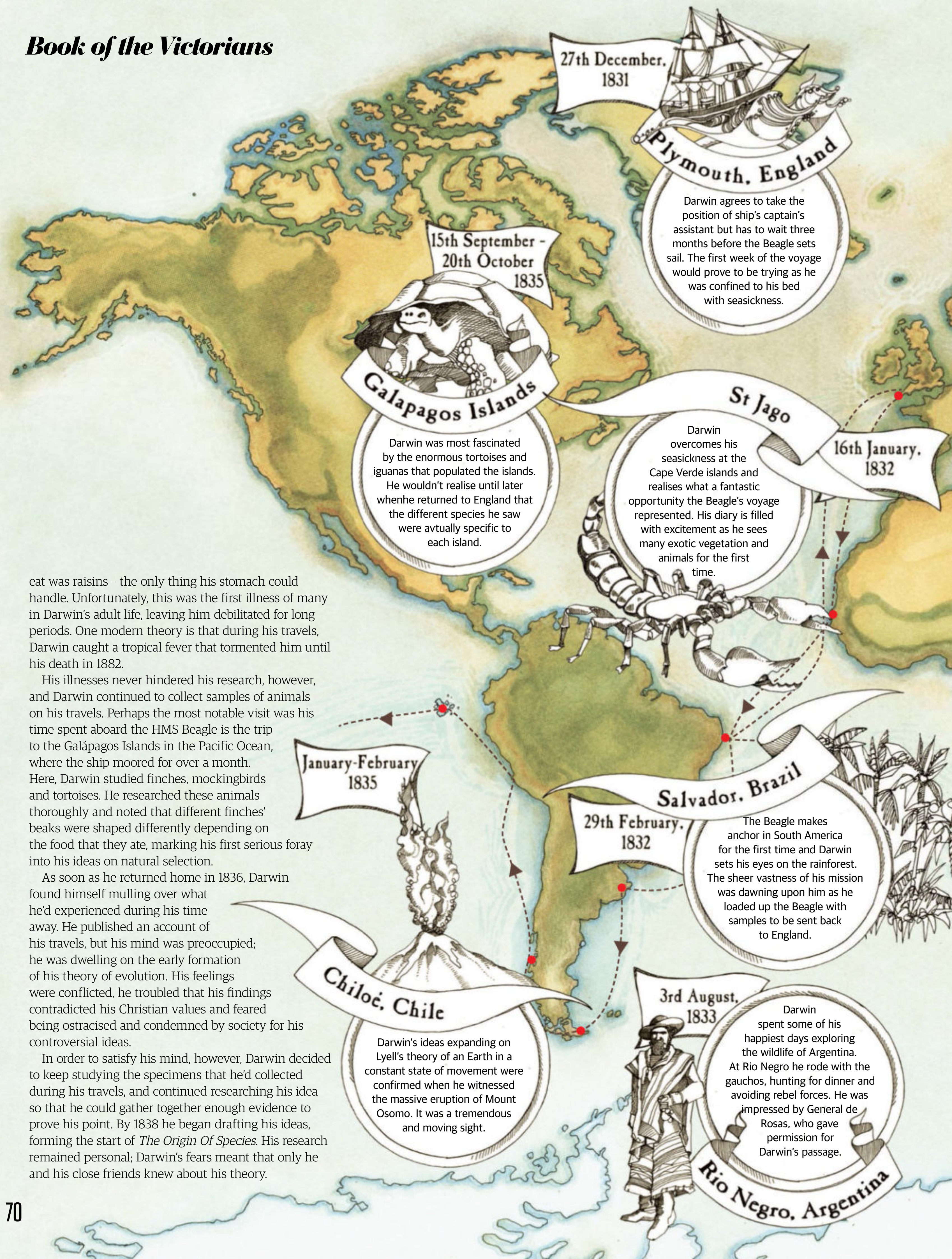
Upon graduating from Cambridge in 1831, Darwin intended to find himself a position within the Church, but another opportunity arose, which would give him a chance to sate his ever-growing curiosity about life. He was invited to join the HMS Beagle as the ship's 'gentleman naturalist' as it went on a two-year voyage around the world. However, what was meant to be two years eventually became five, and Darwin visited four continents over this time.

Yet this chance of a lifetime came at a cost for the young Darwin, who suffered terribly from seasickness. For the first few weeks of setting sail, it's said that the only food that Darwin could eat was raisins – the only thing his stomach could handle. Unfortunately, this was the first illness of many in Darwin's adult life, leaving him debilitated for long periods. One modern theory is that during his travels, Darwin caught a tropical fever that tormented him until his death in 1882.

His illnesses never hindered his research, however, and Darwin continued to collect samples of animals on his travels. Perhaps the most notable visit was his time spent aboard the HMS Beagle is the trip to the Galápagos Islands in the Pacific Ocean, where the ship moored for over a month. Here, Darwin studied finches, mockingbirds and tortoises. He researched these animals thoroughly and noted that different finches' beaks were shaped differently depending on the food that they ate, marking his first serious foray into his ideas on natural selection.

As soon as he returned home in 1836, Darwin found himself mulling over what he'd experienced during his time away. He published an account of his travels, but his mind was preoccupied; he was dwelling on the early formation of his theory of evolution. His feelings were conflicted, he troubled that his findings contradicted his Christian values and feared being ostracised and condemned by society for his controversial ideas.

In order to satisfy his mind, however, Darwin decided to keep studying the specimens that he'd collected during his travels, and continued researching his idea so that he could gather together enough evidence to prove his point. By 1838 he began drafting his ideas, forming the start of *The Origin Of Species*. His research remained personal; Darwin's fears meant that only he and his close friends knew about his theory.



Plymouth, England

27th December, 1831

Darwin agrees to take the position of ship's captain's assistant but has to wait three months before the Beagle sets sail. The first week of the voyage would prove to be trying as he was confined to his bed with seasickness.

St Jago

16th January, 1832

Darwin overcomes his seasickness at the Cape Verde islands and realises what a fantastic opportunity the Beagle's voyage represented. His diary is filled with excitement as he sees many exotic vegetation and animals for the first time.

Salvador, Brazil

29th February, 1832

The Beagle makes anchor in South America for the first time and Darwin sets his eyes on the rainforest. The sheer vastness of his mission was dawning upon him as he loaded up the Beagle with samples to be sent back to England.

Rio Negro, Argentina

3rd August, 1833

Darwin spent some of his happiest days exploring the wildlife of Argentina. At Rio Negro he rode with the gauchos, hunting for dinner and avoiding rebel forces. He was impressed by General de Rosas, who gave permission for Darwin's passage.

Chiloé, Chile

January-February 1835

Darwin's ideas expanding on Lyell's theory of an Earth in a constant state of movement were confirmed when he witnessed the massive eruption of Mount Osomo. It was a tremendous and moving sight.

Galapagos Islands

15th September - 20th October 1835

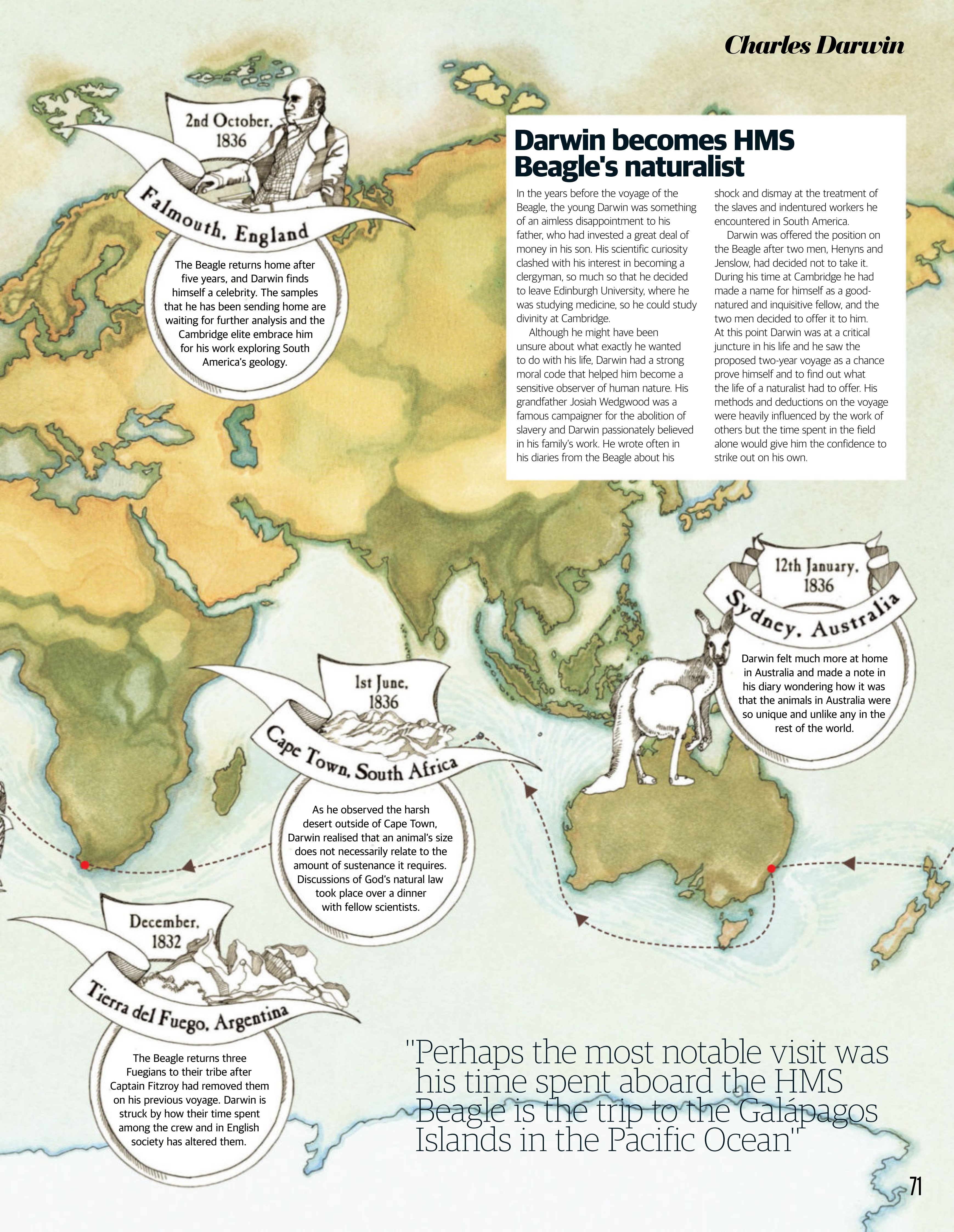
Darwin was most fascinated by the enormous tortoises and iguanas that populated the islands. He wouldn't realise until later whenhe returned to England that the different species he saw were avtually specific to each island.

Darwin becomes HMS Beagle's naturalist

In the years before the voyage of the Beagle, the young Darwin was something of an aimless disappointment to his father, who had invested a great deal of money in his son. His scientific curiosity clashed with his interest in becoming a clergyman, so much so that he decided to leave Edinburgh University, where he was studying medicine, so he could study divinity at Cambridge.

Although he might have been unsure about what exactly he wanted to do with his life, Darwin had a strong moral code that helped him become a sensitive observer of human nature. His grandfather Josiah Wedgwood was a famous campaigner for the abolition of slavery and Darwin passionately believed in his family's work. He wrote often in his diaries from the Beagle about his shock and dismay at the treatment of the slaves and indentured workers he encountered in South America.

Darwin was offered the position on the Beagle after two men, Henyns and Jenslow, had decided not to take it. During his time at Cambridge he had made a name for himself as a good-natured and inquisitive fellow, and the two men decided to offer it to him. At this point Darwin was at a critical juncture in his life and he saw the proposed two-year voyage as a chance prove himself and to find out what the life of a naturalist had to offer. His methods and deductions on the voyage were heavily influenced by the work of others but the time spent in the field alone would give him the confidence to strike out on his own.



2nd October, 1836

Falmouth, England

The Beagle returns home after five years, and Darwin finds himself a celebrity. The samples that he has been sending home are waiting for further analysis and the Cambridge elite embrace him for his work exploring South America's geology.

12th January, 1836

Sydney, Australia

Darwin felt much more at home in Australia and made a note in his diary wondering how it was that the animals in Australia were so unique and unlike any in the rest of the world.

1st June, 1836

Cape Town, South Africa

As he observed the harsh desert outside of Cape Town, Darwin realised that an animal's size does not necessarily relate to the amount of sustenance it requires. Discussions of God's natural law took place over a dinner with fellow scientists.

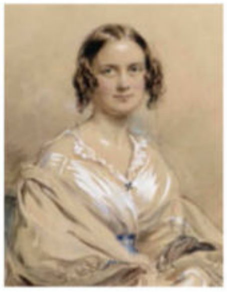
December, 1832

Tierra del Fuego, Argentina

The Beagle returns three Fuegians to their tribe after Captain Fitzroy had removed them on his previous voyage. Darwin is struck by how their time spent among the crew and in English society has altered them.

> "Perhaps the most notable visit was his time spent aboard the HMS Beagle is the trip to the Galápagos Islands in the Pacific Ocean"

The impact of inbreeding

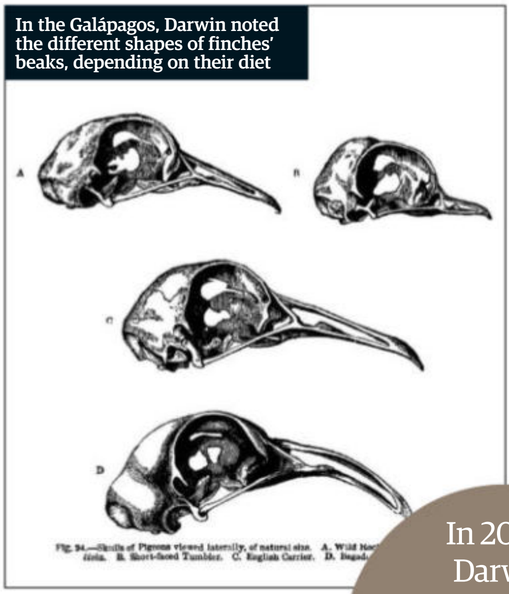


Having married his own cousin in 1839, Darwin and Emma went on to have ten children. Tragically, three died in childhood – a son and a daughter during their infancies, and another daughter, Anne, at the age of ten.

The death of Anne had a huge impact on Darwin and he began researching the effects of inbreeding. Citing the negative impact of self-fertilisation on the life and development of orchids, Darwin questioned whether his own marriage and relations to Emma were causing illness and weakness in his children.

Such was his worry that he sought to change the laws on marriage between cousins. At the time of the 1871 census, he lobbied to add questions surrounding the issue, but he was refused outright. After all, in questioning the morality of marrying a cousin, Darwin was challenging the marriage of Queen Victoria, who had herself married a cousin.

Fortunately, Darwin's remaining seven children lived long, fulfilling lives, each having inherited Darwin's own insatiable curiosity and intelligence. Three of his sons were eventually knighted for their services to astronomy, botany and civil engineering respectively.



In the Galápagos, Darwin noted the different shapes of finches' beaks, depending on their diet

A
B
C
D
Fig. 94.—Skulls of Pigeons viewed laterally, of natural size. A. Wild Roc
Gola. B. Short-faced Tumbler. C. English Carrier. D. Bagado

Science wasn't the only thing on Darwin's mind upon his return, however. On 29 January 1839, he married his first cousin, Emma Wedgwood. It's clear that it wasn't particularly a priority for the scientist - he famously wrote a pros and cons list in order to decide whether to marry at all, with some of the pros charmingly stating that a wife is "better than a dog" and provides "charms of music and female chit chat", while the cons included "forced to visit relatives" and "less money for books".

Marriage may have posed a dilemma for Darwin, but his relationship with Emma produced ten children. Tragically, three of their offspring died, and it was the death of his eldest daughter, Anne, at the tender age of ten, that struck him the most. His children were frequently unwell, and when Anne died, he began to investigate the detriments of inbreeding.

Soon, however, Darwin's mind was forced away from his family and brought back to science. In 1858 Darwin received a letter from a long-time admirer named Alfred Russel Wallace. Inspired by Darwin's travels across the world on the HMS Beagle, Wallace had embarked on his own voyage and had come to the same conclusions about natural selection as Darwin. He sought his hero's advice on how to publish his findings.

Considering that he hadn't gone public with his ideas yet, Darwin was distraught. He'd come to these conclusions first, and he didn't want Wallace to get all the credit for the idea. However, he recognised that Wallace's research was valid, and he didn't want to undermine this. Wallace was still abroad and uncontactable, so Darwin was at a loss of what to do morally.

Eventually, Darwin decided to go public with his ideas. To overcome the issue with Wallace, Darwin presented their ideas alongside each other. Their ideas on evolution and natural selection were presented to the Linnean Society, the leading natural history body in Britain. When he eventually returned to Britain, Wallace agreed that Darwin had acted fairly.

Despite the fact that both Wallace and Darwin were considered co-discoverers of natural selection, Darwin went on to eclipse Wallace thanks to the publication of Darwin's *The Origin Of Species*

In 2000, Darwin replaced Charles Dickens on the £10 note. In 2017 he will be replaced by Jane Austen

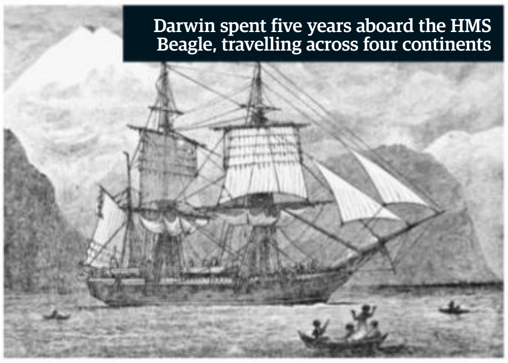
> "Darwin's fears meant that only he and his close friends knew about his theory"

Defining moment

Boards the HMS Beagle

1831

After graduating in 1831, Darwin is intent on finding a position in the Church. However, before he can pursue this, he is invited aboard the HMS Beagle as a 'gentleman naturalist'. Unable to refuse this once-in-a-lifetime opportunity, Darwin accepts. What is intended to be a two-year trip ends up lasting five, during which time Darwin experiences the local wildlife and geology of four continents. He suffers greatly from seasickness, and it's said he only ate raisins for the first few weeks, as it was all his stomach could cope with.



Darwin spent five years aboard the HMS Beagle, travelling across four continents

Timeline

1808

Darwin is born
Charles Darwin is born into a wealthy and liberal family. Despite a Christian upbringing, Darwin's family are open-minded. His grandfather, Erasmus Darwin, had presented the idea of species transmutation.
12 February 1808

1825

Enrols at Edinburgh University
Like his father, Darwin studies medicine at Edinburgh University, but quickly realises the brutality of surgery isn't for him. Edinburgh proves full of like-minded radical thinkers.
1825

1827

Moves down south
Having decided against medicine, Darwin leaves Edinburgh to pursue a career in the Church, leading him to study divinity at Cambridge University. He isn't particularly fond of religion, but his time here enables him to pursue his greatest passion: beetle collecting.
1827

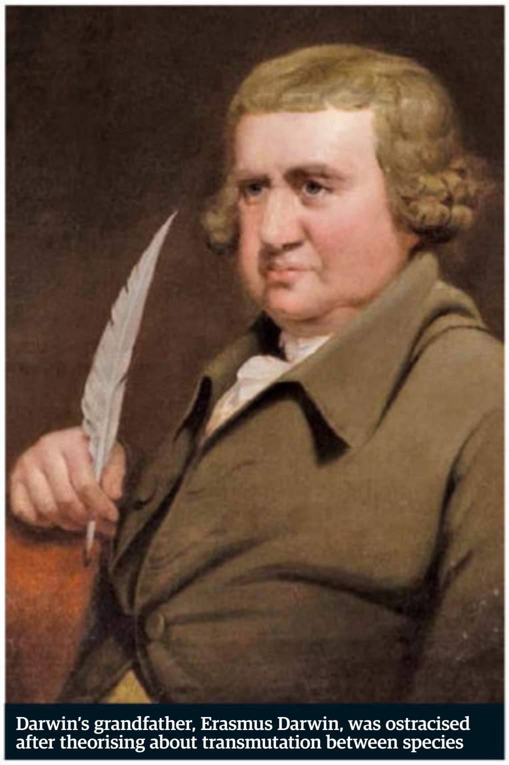
1836

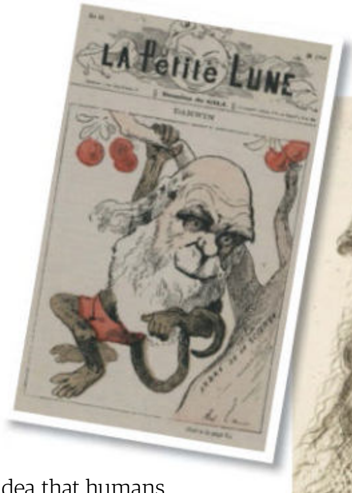
Returns to England
Upon his return to Britain, Darwin decides to hold back on going public about his ideas about evolution. Instead, he gathers more supportive evidence by studying the specimens that he has collected during his travels.
1836

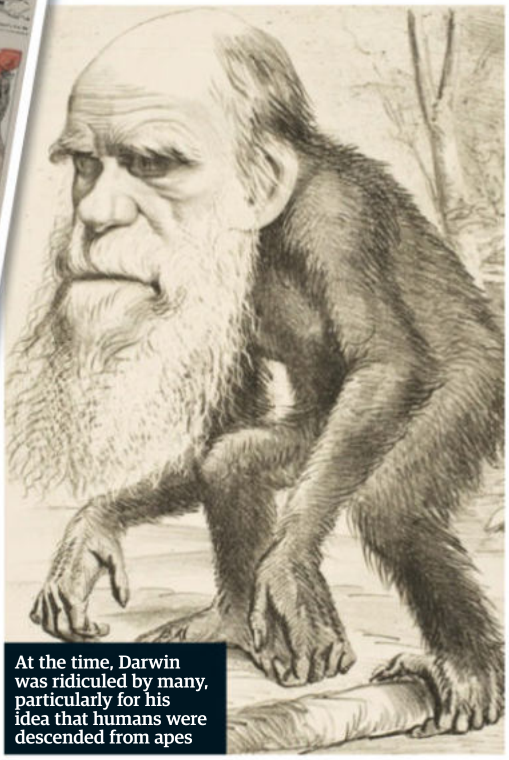
1839

Marries Emma Wedgwood
After using a pen and paper to weigh up the pros and cons of marrying his cousin Emma, he decides that companionship overrides his need for intelligent conversation.
1839

in the following year, 1859. It was this literary achievement that captured the imagination of the public, and it was an incredible success. The Origin Of Species went on to become a bestseller, and it was translated into many languages. Yet not everyone was quite so accepting of Darwin's book. Many members of the Church accused Darwin of blaspheming, as the book contradicted the idea of divine creation that was written in the Bible. However, some religious figures interpreted Darwin's theory as an instrument of God's design. It wasn't just within religious and scientific circles that Darwin's text sparked controversy – his theory became part of popular culture, and Darwin was parodied, ridiculed and caricatured in many newspapers at the time, particularly for having hinted at the idea that humans were descended from apes.


Darwin's grandfather, Erasmus Darwin, was ostracised after theorising about transmutation between species




At the time, Darwin was ridiculed by many, particularly for his idea that humans were descended from apes

In June of 1860, a debate was held about evolution at Oxford University, where Darwin's biggest supporters went head to head with religious leaders. In what is often seen as a turning point in the relationship between religion and science, Bishop Samuel Wilberforce taunted Thomas Huxley – one of Darwin's close friends and a staunch believer in evolution – about his ape ancestry, and Huxley retorted sarcastically. Both left feeling that they'd won the debate. Regardless of who had won, it's a prime example of how much Darwin's theory shook Victorian society to its very core.

Despite his early fears, Darwin had borne the brunt of ridicule and disbelief at his revolutionary theory and was no longer a stranger to criticism. In 1871, overcoming his doubt, his discourse on how humans were descended from apes turned explicit in his latest work, *The Descent Of Man*. While many Victorians were divided about the idea of evolution, his ideas were gaining credence, and many notable figures at the time were converting to a Darwinist mindset.

As his health deteriorated, Darwin became a virtual recluse at his rural home in Downe, Kent, where he was nursed by his wife and children. He seldom received visitors, but he never let his illness impact his work. On 19 April 1882 Darwin passed away, having expressed a wish to his wife Emma that be buried in a local graveyard, despite his religious stance (as an agnostic). His close friends, however, had other ideas, and he was eventually laid to rest at Westminster Abbey.

Defining moment

Publishes the theory of evolution

1859

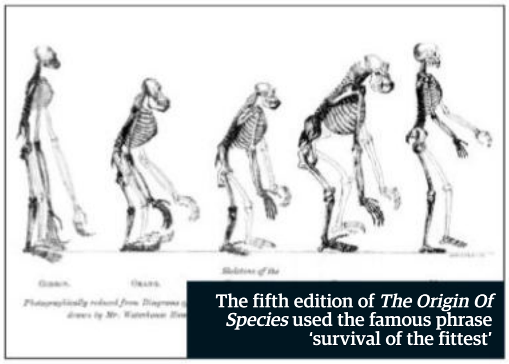
Fearing Wallace will publish before him, Darwin goes public with his findings. In 1858 he presents his ideas to the Linnean Society alongside Wallace's, crediting him too. In 1859 Darwin publishes *The Origin Of Species*, which goes on to be a bestseller. However, the book sparks controversy in religious circles and some call Darwin a blasphemer. Despite this, many come to agree with Darwin's ideas, and less than a generation later, his book becomes essential reading for any scientist.

Defining moment

The fifth edition

1869

As a response to critics, Darwin edited *The Origin Of Species* to strengthen his arguments. By the fifth edition, Darwin quoted the phrase 'survival of the fittest' from economist Herbert Spencer, which has often been incorrectly attributed to Darwin. The phrase was fitting for Darwin's ideas; instead of using the term 'natural selection', which tended to have underlying religious connotations and interpretations, 'survival of the fittest' was the most appropriate way to paraphrase Darwin's theory.


GIBBON.
ORANG.
Skeletons of the
Photographically reduced from Diagrams of
drawn by Mr. Waterhouse Haw
The fifth edition of *The Origin Of Species* used the famous phrase 'survival of the fittest'

1858

Wallace writes to Darwin
In the summer of 1858, Darwin receives a letter from an admirer, Alfred Russel Wallace, seeking advice on how to publish his independent findings of natural selection, which prompts Darwin to go public with his ideas.
Summer 1858

1860

The debate at Oxford
Darwin's biggest believers go head to head with Bishop Samuel Wilberforce in a debate at a meeting for the British Association For The Advancement Of Science. Held at Oxford University, both sides depart feeling that they've come out as winners.
June 1860

1871

The origin of humanity
Having previously shied away from explaining human evolution, Darwin plucks up the courage to explicitly state that humans are descended from apes in his latest publication, *The Descent Of Man*.
1871

1882

Death and burial
Having been wracked with ill health, Darwin passes away in the company of his wife and a few close friends. Despite expressing a desire to be buried in a local graveyard, he is laid to rest at Westminster Abbey.
19 April 1882

© Corbis

EVERYDAY LIFE

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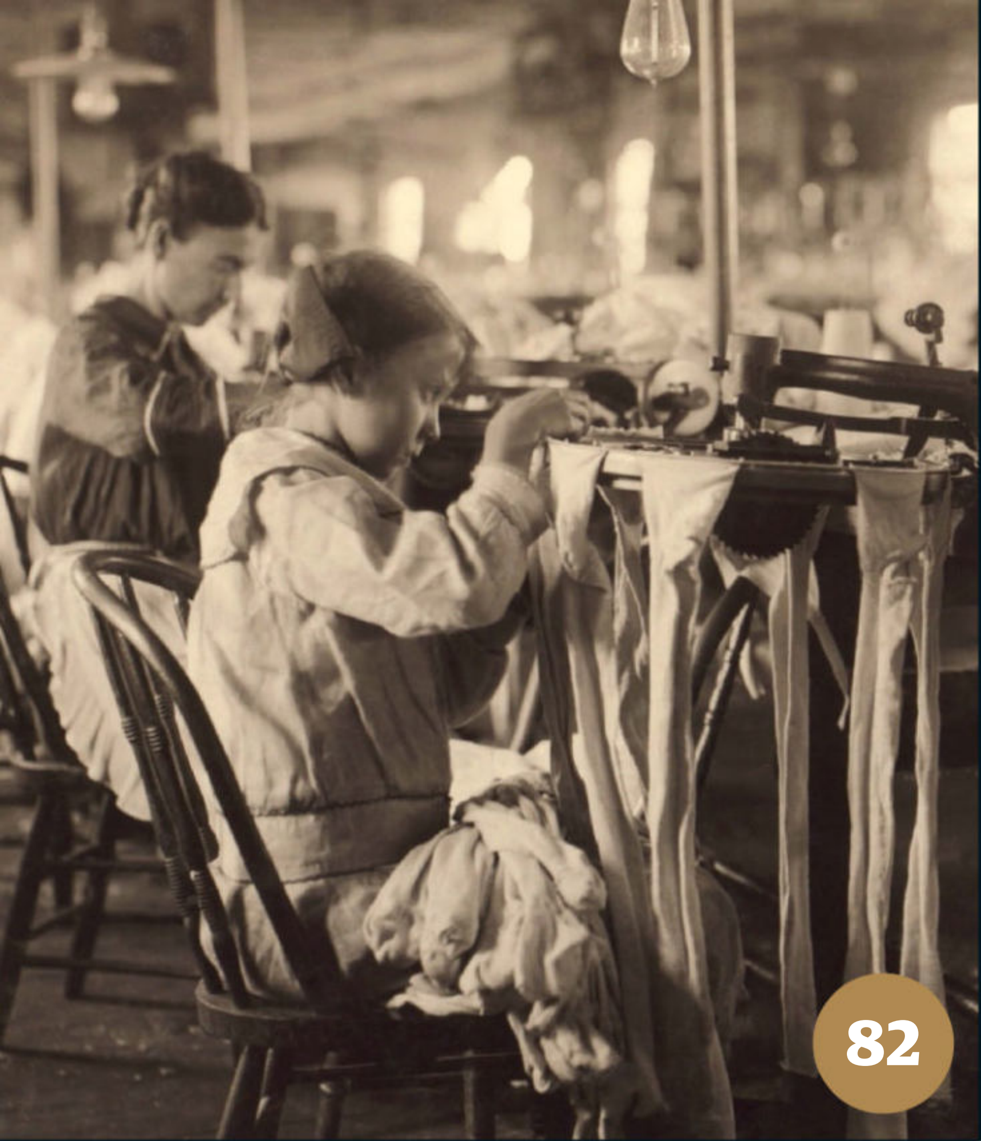
Social commentator and author, Charles Dickens was one of the most influential figures of the era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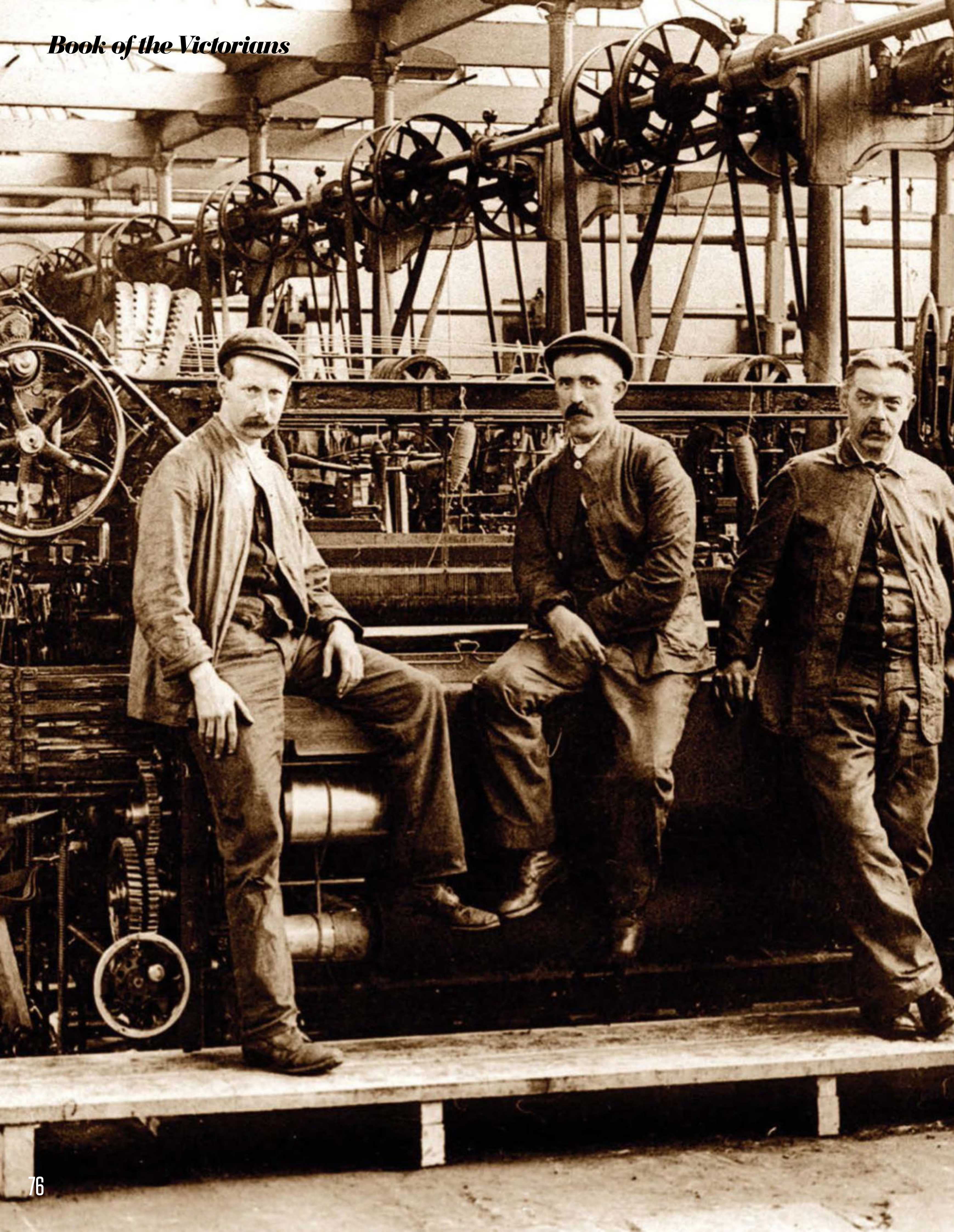


Working life

Business was booming and the wealth of Britain soared, but the workers making the money for the factory owners were left living in squalor

Work in the Victorian period saw complete upheaval in an incredibly short space of time. Thanks to the Industrial Revolution, the lives of millions of workers changed forever – but it wasn't necessarily a good thing. At the time of the Industrial Revolution, no legislation was put into place to protect workers, and factory owners and landlords exploited this as much as they possibly could. Victorian employees were used to working hard, but as the pace of industry stepped up, workers had to raise their game to match the unreasonable demand.

Life before the Industrial Revolution was incredibly different to how it is today. An agrarian society, Britain relied on agriculture for its wealth, which meant that many people lived and worked predominantly in the countryside. Many men hired themselves out to farms, ploughing the land and looking after livestock for a landowner, while women would spin yarn for clothing. Life was hard and communities relied on each other – people would make enough of their product for themselves and sell what they had left in order to cover the costs of their other necessities. This meant that many workers had very specialised skills that made them suitable to specific roles. It wasn't an efficient process by any means, but it was one that many people were used to and the prospect of working in a factory seemed like a distant horror. Little did they know that it was much closer than they thought.

> As the pace of industry stepped up, workers had to raise their game to match the unreasonable demand

With the dawn of the Industrial Revolution starting around 1760, society began its unstoppable transformation. First to succumb to mechanisation was the textile industry. With the development of the spinning jenny – and later the spinning mule – it was possible to create multiple threads at the same time. Later, the invention of a power loom meant that a machine could weave cloth quicker and much more effectively than the previous manpower alone.

Soon it wasn't just the textile industry that had undergone a transformation. Seeing the phenomenal impact on productivity from industrialising the textile trade, many other industries followed along the same path. With the growing merchant trade, transport was a top priority, and thanks to the power of steam there were trains and tracks enough to employ tens of thousands of workers, both as navvies and within the iron trade.

The impact on society was unprecedented. Trade was booming, with much more variety in the commodities available – Britain was undoubtedly the superpower of the world. However, not everybody looked favourably upon the changes

Working life in figures

The impact of the Industrial Revolution on Victorian society was immense

Only **40%** of people born in the 1850s lived until their 60s

One in four people who contracted tuberculosis (known as consumption) would die of it

In 1901, **84%** of males were employed, while the remaining **16%** were either retired or 'unoccupied'

In 1878, **1,490** workers were killed in mining accidents

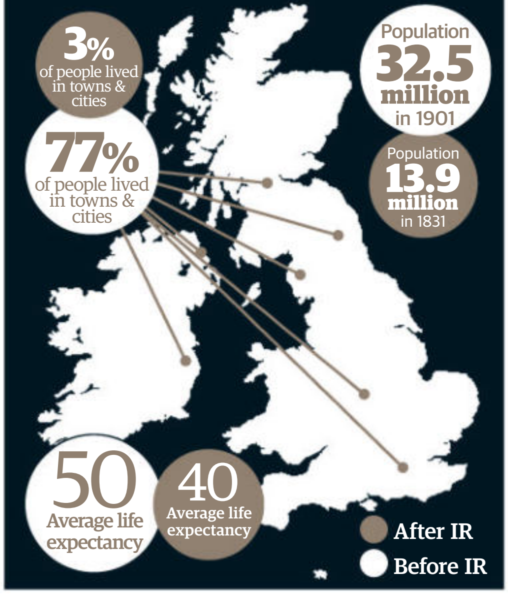
The average wage in the 1850s was **15 shillings** a week

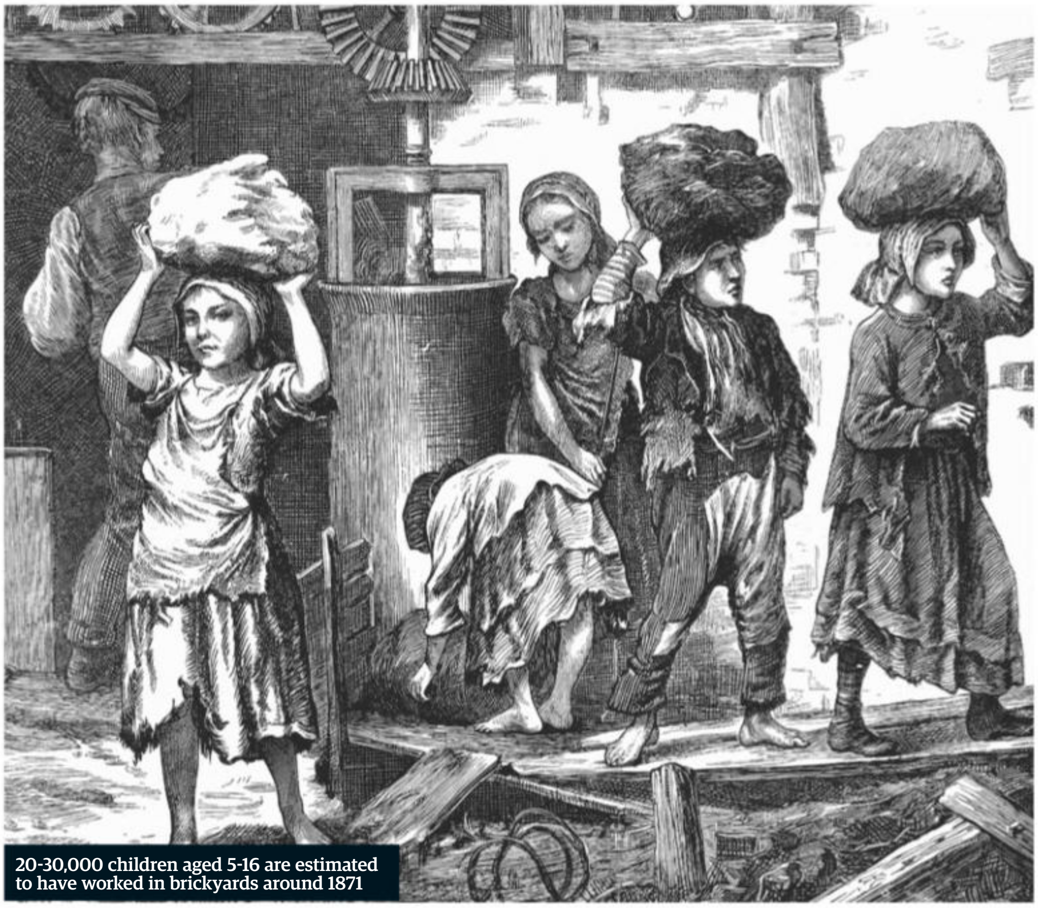
Children often earned only **five shillings** a week

A law in 1874 meant people could work a maximum of a **56-hour week**

Population

A boom borne of industrial change





20-30,000 children aged 5-16 are estimated to have worked in brickyards around 1871

heralded by the Industrial Revolution – particularly the poverty-stricken workers themselves.

Supposedly instigated by a man named Ned Ludd, a group of textile workers banded together in the early 19th Century to revolt against the industrialisation of their trade. Known as the Luddites, these radicals would send death threats to factory owners, magistrates and traders, signing it as King Ludd. Their movement also had a much more physical, violent branch, and the Luddites became infamous for their terrifying attacks on factories during the dead of night, during which time they would smash and ruin the technologies that had put them out of business.

These revolts were indicative of more than just dissatisfied, usurped textile workers, however. They were also a representation of the ever-increasing discontentment felt by workers across the country as their trades inevitably succumbed to industrialisation.

As Britain's wealth went from strength to strength, and as the factory owners became richer and richer, the workers continued their monotonous, pitiful existence stricken by poverty and illness. The disparity between the middle and upper classes and the working class was bigger than ever before, and there seemed to be no end to the demands made on workers.

Since the Industrial Revolution was relatively young, there were no laws in place to protect the rights of the workers and they were physically and mentally drained by their jobs. Shifts were often 14 hours a day for a pittance of pay, but if workers expressed discontent they would soon be dismissed. In some cases, workers were even blacklisted, making it impossible for them to find new employment. Jobs were menial and monotonous, and workers quickly became disillusioned with their mechanical, repetitive roles. There was no longer a sense of pride felt by workers for their final product – after all, they stopped feeling that sense of ownership on the product that had been created.

Perhaps the biggest victims of the Industrial Revolution, men often found themselves struggling to keep jobs when their employers were continually searching for cheaper and cheaper labour. This was often found in the form of women and children. Men sometimes had to forfeit their role as a family breadwinner, relying on the children to earn the money to put food on the table. The luckier men would find themselves in manual labour roles. In

> "Children were usually employed to fit into the smallest of spaces in order to clean or fix machinery"

particular, navvies were always needed during the Industrial Revolution. With a growing rail service across the country, the men employed to piece it together worked in all weathers. It was by no means an easy job - it involved lugging around heavy rails, and navvies often had to tunnel through hills and across dangerous terrain in order to lay the tracks.

Women weren't much better off than men during the Industrial Revolution. There was little discrimination in roles at the time, and women would find themselves working in equally desolate conditions for long hours and terrible pay.

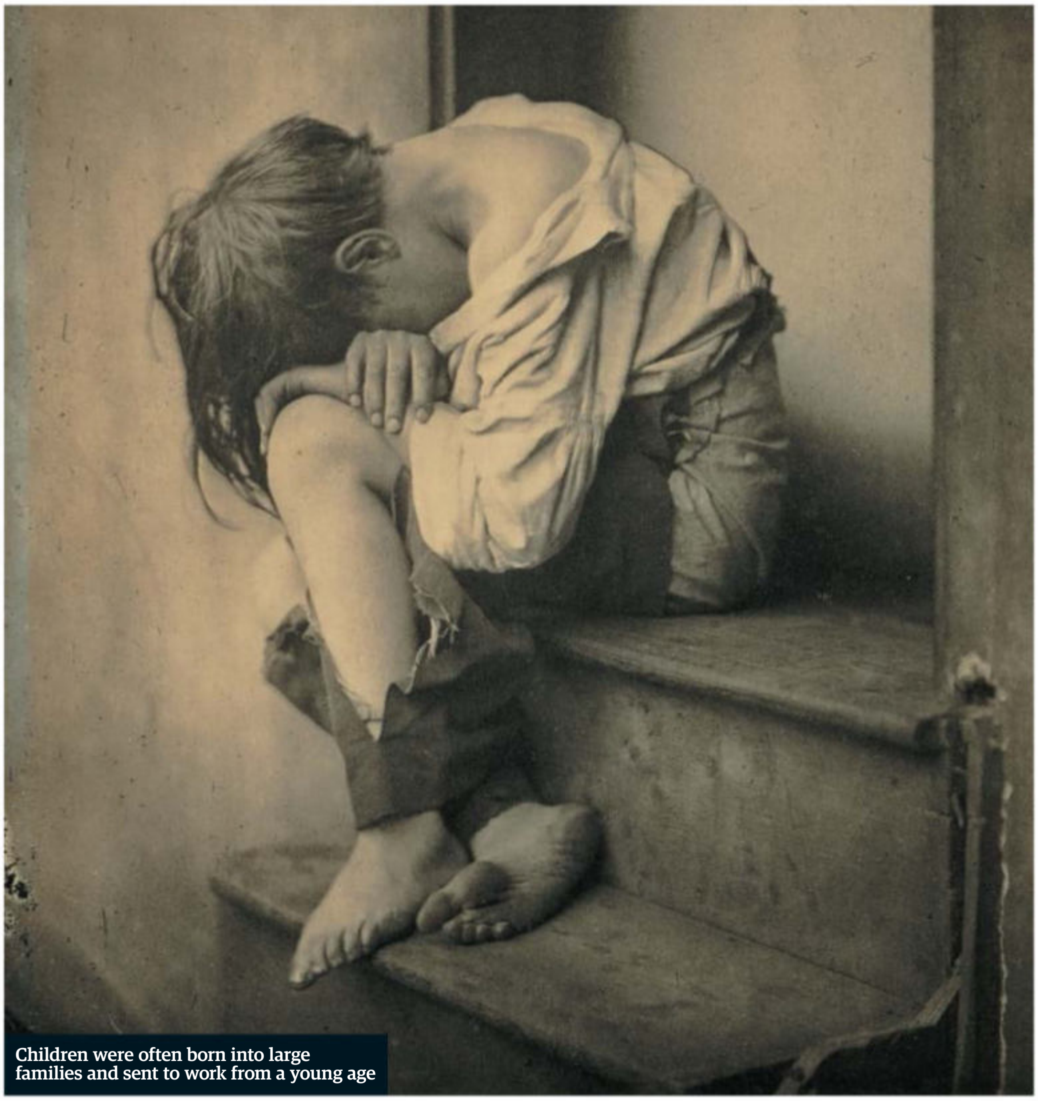
The demands on women were much more than just earning money, however. With child labour the most sought after, couples couldn't afford to have just a couple of children. Many families would have over ten children in order to provide a sustainable income for the family. Alongside her duties to her employer, a woman had to continue her domestic role, a great deal of which involved rearing children. The situation was so bad that in some cases, women would give birth to their child one day and have to return to work the following day, leaving the newborn baby to be cared for by an older relative.

Children were the most desirable labourers an employer could want. Companies could hire children and pay them significantly less than an adult, all the while making them do the most dangerous and intensive roles. Due to their small size and litheness, children were usually employed to fit into the smallest of spaces in order to clean or fix machinery. On top of this, owing to their were youth, inexperience and lack of education, children couldn't argue that what they were doing was wrong. They were perfectly exploitable.

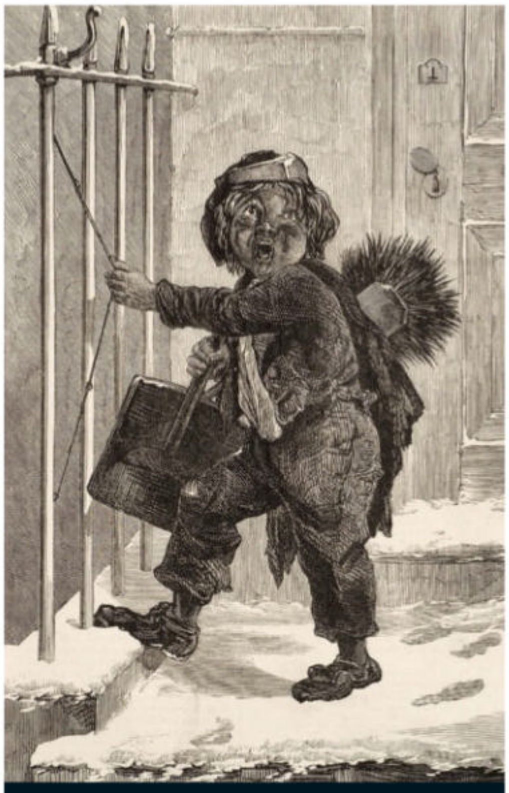
Even the simplest roles could be found an employee, and children as young as three were often given simple tasks to bring in more money for the family. From feeding chickens to collecting stones, there was a role for anyone of any age during the Victorian period.

With many children employed in factories and in extremely dangerous roles, the luckier ones found themselves apprenticed to a craftsman. While the work was more specialised and beneficial, children still worked extremely long hours like their parents, and pay was not much better.

No amount of work could make up for what working-class children lacked in education, however. It was easy to tell the wealth of a child's



Children were often born into large families and sent to work from a young age



Owing to their size, children as young as three years old would carve a dreary existence as chimney sweeps

Victorian jobs and their dangers

Textile worker

Favoured for their size and cheap labour, children were often employed to do the nastiest roles in textile mills. Unwilling to pause the machines, factory owners made children climb under the machines while they were still running to clean. Many children were killed and countless others lost limbs to the ferocious, incessant machines.

Coal miner

Perhaps doing the worst job of all, coal miners worked in pitiful conditions. Mines were prone to flooding or collapsing, and sometimes the spark of a pickaxe could cause trapped gases to explode. In 1838, 26 child labourers were killed when a stream flooded a ventilation shaft.

Chimney sweep

Despite laws against it, boys as young as five were sent up chimneys to keep them clean. They might have been small and lithe enough to fit into narrow chimneys, but there was no guarantee that they'd get out. As well as the cuts and sores from the walls, boys risked falling to their deaths or getting stuck. The soot caused irreversible damage to their lungs, and those who miraculously survived sweeping chimneys rarely lived past middle age.

Matchstick maker

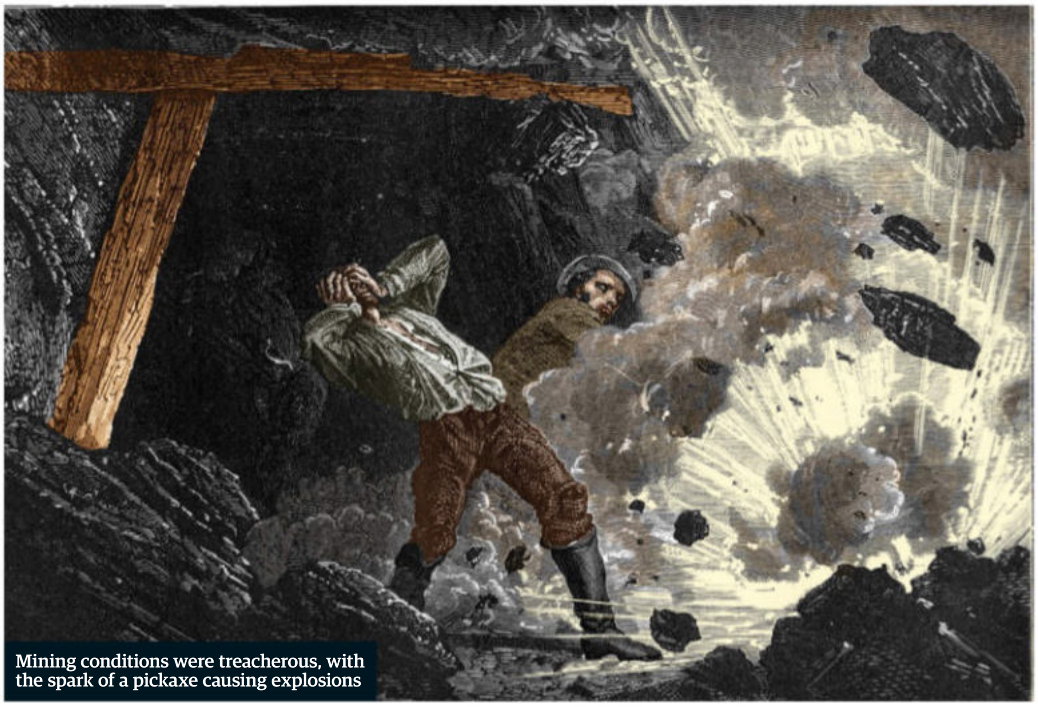
Performing a menial job, matchstick makers worked in crowded rooms, dipping sticks into phosphorus. The fumes from the phosphorus and sulphur were poisonous, and in the tiny, unventilated rooms, match makers inhaled it. The consequences were terrible. Gums would swell, sudden abscesses would start oozing and the jaw would begin to rot. The only treatment for this horrifying case of 'phossy jaw' was to remove it.

family; if a child could afford to be sent to school, the family were certainly middle class or above. During the Industrial Revolution, all working-class children were illiterate, and it was a tragedy for their futures – with no education and (in many cases) no specialist training, it was impossible for them to find better jobs as they grew older.

Working conditions in Victorian Britain were terrible, but there was one place that even the working class feared above everything else: the workhouse. Without a doubt one of the worst places to be employed, the workhouse was where the poorest and eldest in society had to go. Introduced in 1834, the Poor Law Amendment Act meant that accommodation had to be provided for the poor, and this took the form of hundreds of workhouses. While they were paid in money, food, shelter, medical care, education and training, it was a terrifying prospect to many Victorians.

In order to discourage idleness, the government purposefully made the workhouse a horrifying last resort for most working Victorians. While the workhouse seems appealing on paper, in reality it was a traumatic experience for anyone forced to live there. Families were split up, and there was a terrible punishment waiting for those who dared to attempt to communicate with each other. Even during leisure time, it was against the rules to communicate with other groups. There were no toys or books; education failed to cover the essentials of reading and writing; residents had no space or privacy, and shared their tiny dormitories with dozens of others.

"In order to discourage idleness, the government purposefully made the workhouse a horrifying last resort"


Mining conditions were treacherous, with the spark of a pickaxe causing explosions

The rise of radicalism

As the Industrial Revolution paved the way to capitalism, opposing forces banded together to highlight its many ills

The Industrial Revolution didn't just represent the development of industry; it also marked the transition from agrarianism to the capitalist society that we have today. While many celebrated this economic upheaval, it gathered its fair share of criticism.

Championing a more equal society above the profit-driven, slave-driving capitalist economy, socialism took many forms in the Victorian period. With Karl Marx's controversial *Communist Manifesto* published in 1848, radicalism was on the rise across Europe. However, in typical British style, it took a much more reserved twist across the United Kingdom.

Still supportive of a democratic society, socialism in Britain was much more conservative. Marx's radical ideas certainly intrigued Victorians, but fascinated though they were, nobody was quite ready to put Marx's communist theories into practice at the time. Instead, Victorian socialists drew inspiration from the works of a wide range of writers, including Samuel Taylor Coleridge, Benjamin Disraeli and John Ruskin.

One of the most successful veins of socialism during the Victorian era was the Fabian Society, founded in 1884, which sought social justice and to bridge the ever-widening gap between the rich and the poor. In contrast to the Marxist mindset, the Fabian Society endeavoured to reach their goals through gradual, non-revolutionary means.

What was essentially a worker's ideology, however, went largely unknown among the working classes. Politics remained exclusively for intellectuals, and it wasn't until 1918 that all men above the age of 21 (and women over 30) were given the right to vote.

There's no denying that life was hard for the working class in Victorian Britain. When the Industrial Revolution first began to take hold across the country, there were no laws in place to protect the workers, and for a long time afterwards there were no intentions to improve conditions. However, after several investigations and reviews, looking after the worker began to slowly crawl up politicians' priority lists.

The Factory Act of 1833 was a milestone in protecting the rights of child labourers. Under this new piece of legislation, children under the age of nine were banned from working in textile mills, while nine to 13-year-old children were allowed to work a maximum of nine hours a day for a total of 48 hours a week. Furthermore, children aged between 13 and 18 were only allowed to work a maximum of 12 hours a day and 69 hours a week. It also became a legal requirement for any child under the age of 11 to receive two hours of education a day.

Another milestone, the 1842 Mines And Collieries Act meant prohibited underground work for all women and girls, as well as boys under the age of ten. Similarly, no child under the age of 15 was allowed to operate machinery in the mines.

Yet, for all the legislation to protect the workers that was passed during the Victorian period, much of it went unenforced. Many of the laws that were passed were simply for show; it was a shambles to boost the morale of workers, and with no way for the workers to revolt without losing their jobs, what could be done? Up until 1824, trade unions were illegal, and even after decriminalising the formation of one, it was still against the law to strike. Only through the Trade Union Act of 1871 could workers legally strike – and even then, they were often too suspicious or scared to do so.

As Dickens so famously said in *A Tale of Two Cities*, "it was the best of times, it was the worst of times". No quote rings quite so clearly, and it certainly struck a chord in Victorian Britain. The country had never been so powerful. With an empire extending to almost a quarter of the globe, the most developed industry in the world and the finest society, it was certainly the best of times for the British Empire.

Yet with a working class that, in stark contrast, was so deprived and stricken with poverty, these times were the worst for many people. With terribly paid jobs and no education, the working class of the Victorian era were destined to a life controlled by their factory overseer. There was no hope, there was no future; the working class of Britain shaped the Empire into the dominating force that it was, but the working class could expect nothing but a life of servitude ahead.

The plight of the poor

With death tolls rising and health deteriorating, many writers took to satirising, representing and commentating on working-class life

Elizabeth Gaskell, *Mary Barton* 1848

Elizabeth Gaskell's first novel would see her praised by such luminaries as Charles Dickens and Thomas Carlyle. Drawing on her recollections of life in Manchester, Mary Barton told the story of two families of the city's working class in their own dialect, in an effort to give these people a voice.

"The rich know nothing of the trials of the poor; I say, if they don't know, they ought to know. We're their slaves as long as we can work; we pile up their fortunes with the sweat of our brows, and yet we are to live as separate as if we were in two worlds."

Charles Dickens, *Hard Times* 1854

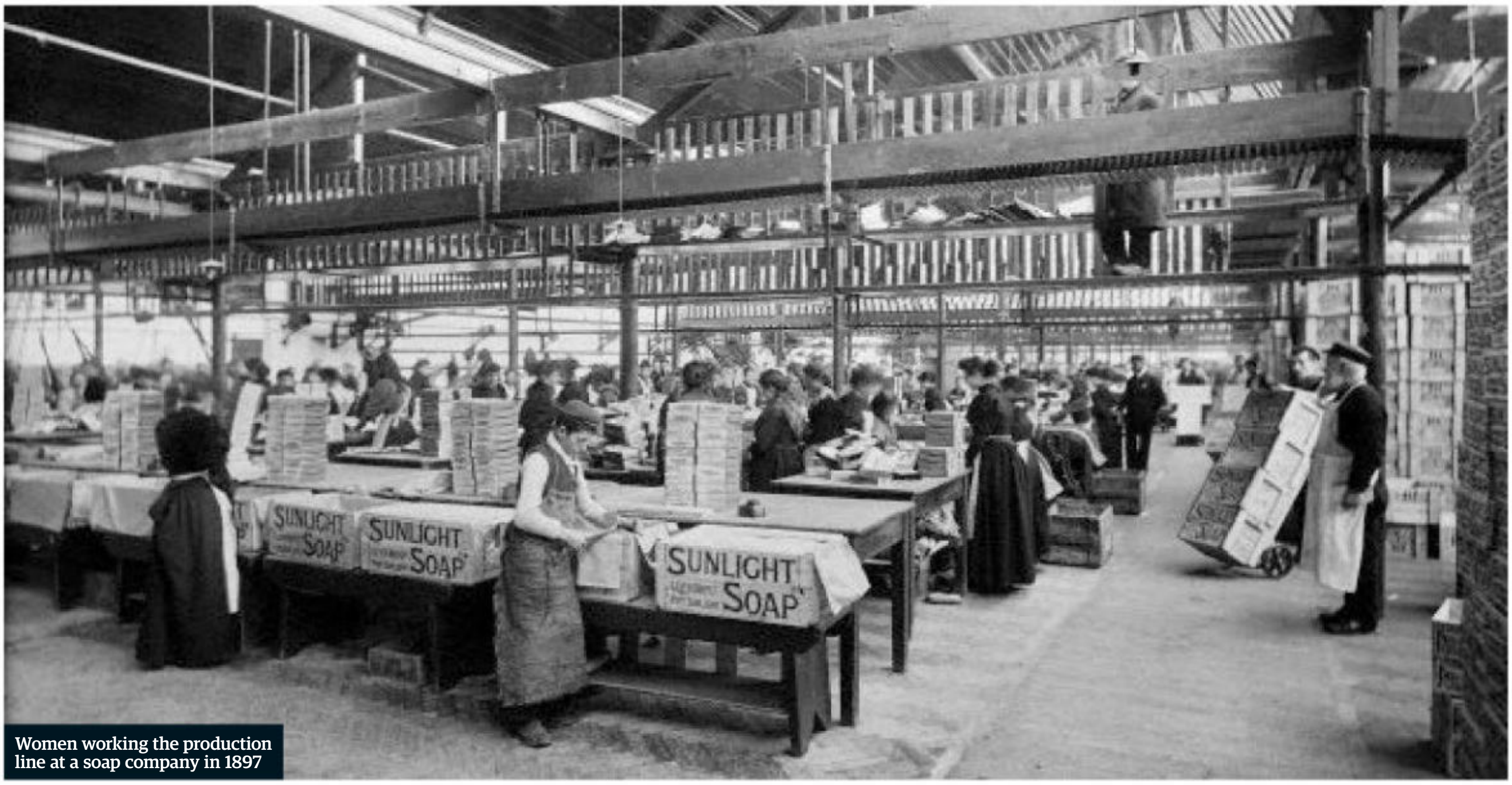
We aren't short of examples of Dickens portraying the plight of the poor and the helpless, but *Hard Times*, his shortest novel, is arguably the angriest. Set in the fictional city of Coketown, it's a satirical look at utilitarianism and the harsh treatment of the workers. It had a mixed reception, but its power is unquestionable.

"It is known, to the force of a single pound weight, what the engine will do; but, not all the calculators of the National Debt can tell me the capacity for good or evil"

Benjamin Disraeli, *Sybil* 1845

Published nearly 20 years before he served as prime minister, Benjamin Disraeli's novel *Sybil* was an investigation into the state of England's working classes. Driven by his belief in equal rights and universal (male) suffrage, Disraeli's novel is one of the first to depict the period's categorical separation of the rich and the poor.

"Two nations; between whom there is no intercourse and no sympathy; who are as ignorant of each other's habits, thoughts, and feelings, as if they were dwellers in different zones, or inhabitants of different planets; who are formed by a different breeding, are fed by a different food, are ordered by different manners, and are not governed by the same laws: the rich and the poor."



Women working the production line at a soap company in 1897

© Alamy, Getty, Corbis, SPL

Day in the life of a child labourer

With nimble hands and tireless energy, children were a cost-effective workforce that toiled for a pittance

A British census conducted in 1841 reported that almost 107,000 children were employed in the textile industry alone. The reason for this sudden boom in child labour was no mystery. As industry moved from the fields to the factories, families poured into the cities to find employment. For the factory owners, children were the obvious choice for their new workforce; not only were they small enough to move under the machines, but they could also get away with paying them less than adults, though their workload was equal. Although laws were eventually passed, child labour continued in Europe well into the 20th Century.

Go to work

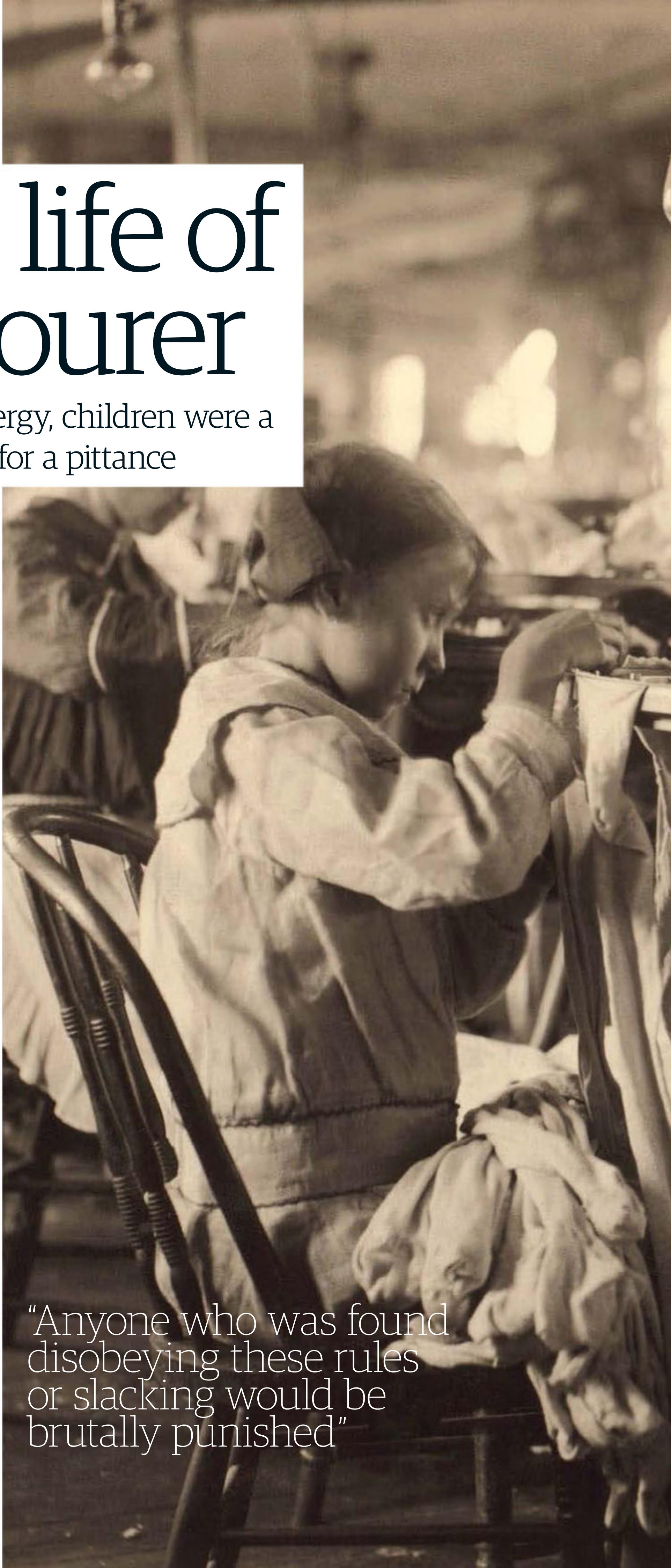
All children would need to be at the mill at 6am, sometimes 5am during busy periods. One form of punishment for tardiness was to be 'weighted'. This involved a heavy weight being tied to the offender's neck, then they were forced to walk up and down the factory floor. There were even cases of children being dragged to the factory naked, holding their clothes, in order to ensure they would never be late again, even by a minute.

Work tirelessly

Tasks appointed to children varied depending on their size, gender and age. The youngest and smallest children would work as scavengers,, squeezing under the machinery while it was still in motion to pick up scraps of cotton that had fallen to the floor. 'Piercers' were small girls who mended broken threads. The most common employment of children was to keep the machines oiled, working and supplied with thread.

Eat lunch

Child labourers would only get 30 minutes to eat lunch. Because they would need a lot of energy, their diet was high in carbohydrates. Common foods were oatcakes, porridge, gruel and beer. Meanwhile, water would be difficult to get because much of it was polluted, and milk and dairy products were often too expensive.



> "Anyone who was found disobeying these rules or slacking would be brutally punished"

Children were expected to work for long hours and risk their lives. Their low wages were sometimes a family's only income

Day of a child labourer

Get an injury

The Industrial Revolution filled the factories with large, heavy and dangerous new equipment. Although these machines increased efficiency, they posed great danger to the children who worked with them. Not only did the heavy dust encourage respiratory diseases, but children would also suffer stunted growth and severe back pain. Those working in mills could bruise, skin or even lose their fingers on the dangerous machinery. The Factory Act of 1833 promised improved conditions, but they were slow to come to fruition.

Collect wages

Child workers were attractive employees during this time because their labour was far cheaper than their adult alternatives. As there was no legislation in place, child wages varied widely during the Industrial Revolution. On average child workers were paid about ten to 20 per cent of the equivalent adult's wages. While men could command 15 shillings (75 pence) a week, children earned just three shillings (15 pence).

Attempt escape

Many of the children who worked in these dangerous factories were orphan apprentices who received no wages, but instead were paid in inadequate food, shelter and clothing. Because these orphans would sometimes attempt to escape, they were locked up when not working. Any children who did run away could be sent to prison, and rebellious would-be runaways had shackles riveted to their ankles to prevent any further chance of escape.

Receive punishment

Factories operated with a very strict set of rules, and anyone who was found disobeying these rules or slacking would be brutally punished. Verbal abuse and beatings by supervisors were very common, and there were reports of children being beaten so brutally that they later died as a result of their injuries. A brutal punishment for girls proud of their hair was haircutting, and children found slacking were held by their legs and dipped into cisterns filled with water.

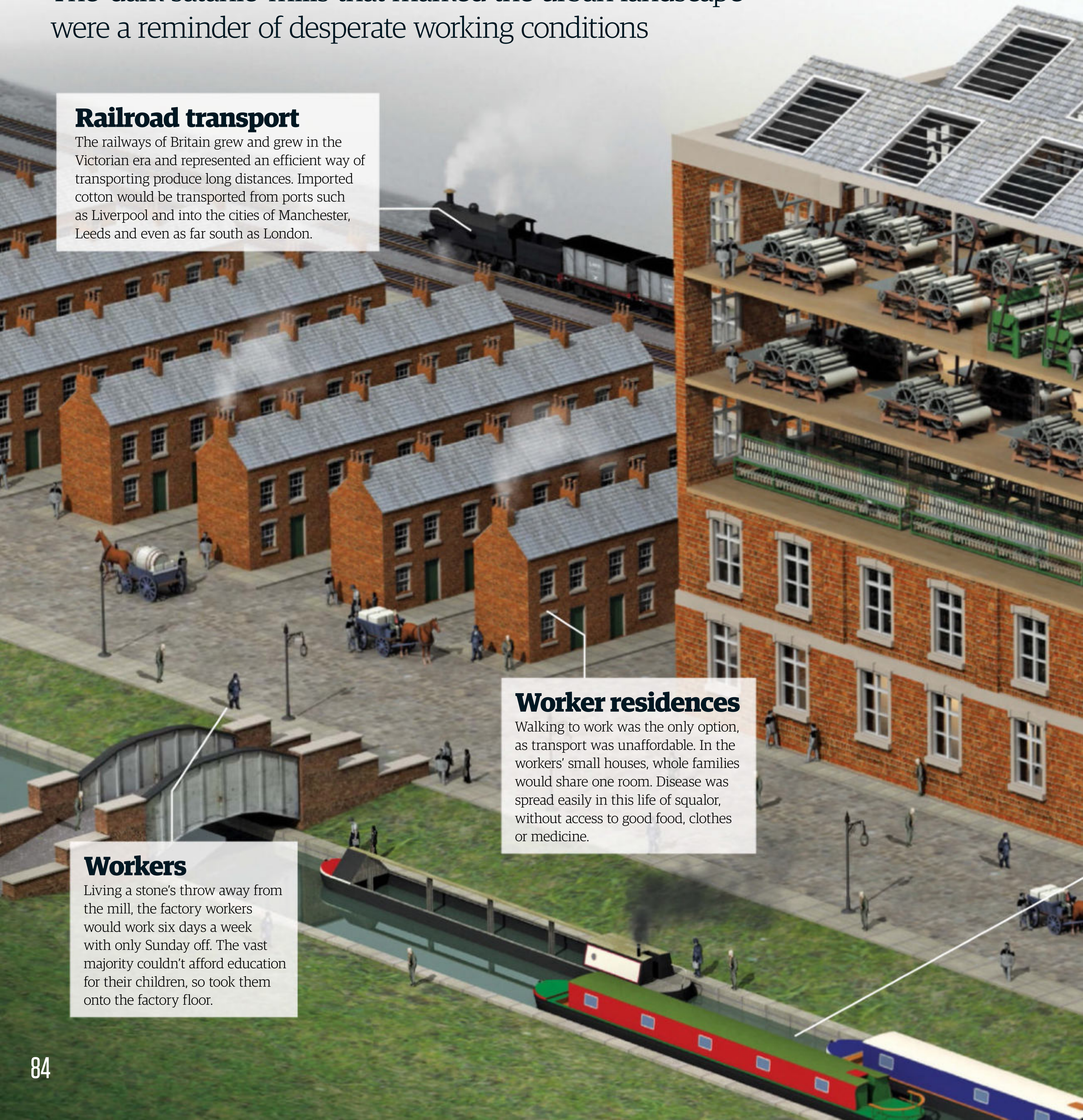
Work into the night

Child labourers would often work until nine or ten at night; on Saturdays they could even work until midnight. The 1833 Factory Act legislated for set working hours, with children aged nine to 13 only allowed to work eight hours and 14 to 18-year-olds no more than 12 hours per day. Under nines were prohibited from working at all, and compulsory education of two hours a day was guaranteed. Changes, however, did not happen overnight.

© Alamy

Inside a textile mill

The 'dark satanic' mills that marked the urban landscape were a reminder of desperate working conditions



Railroad transport

The railways of Britain grew and grew in the Victorian era and represented an efficient way of transporting produce long distances. Imported cotton would be transported from ports such as Liverpool and into the cities of Manchester, Leeds and even as far south as London.

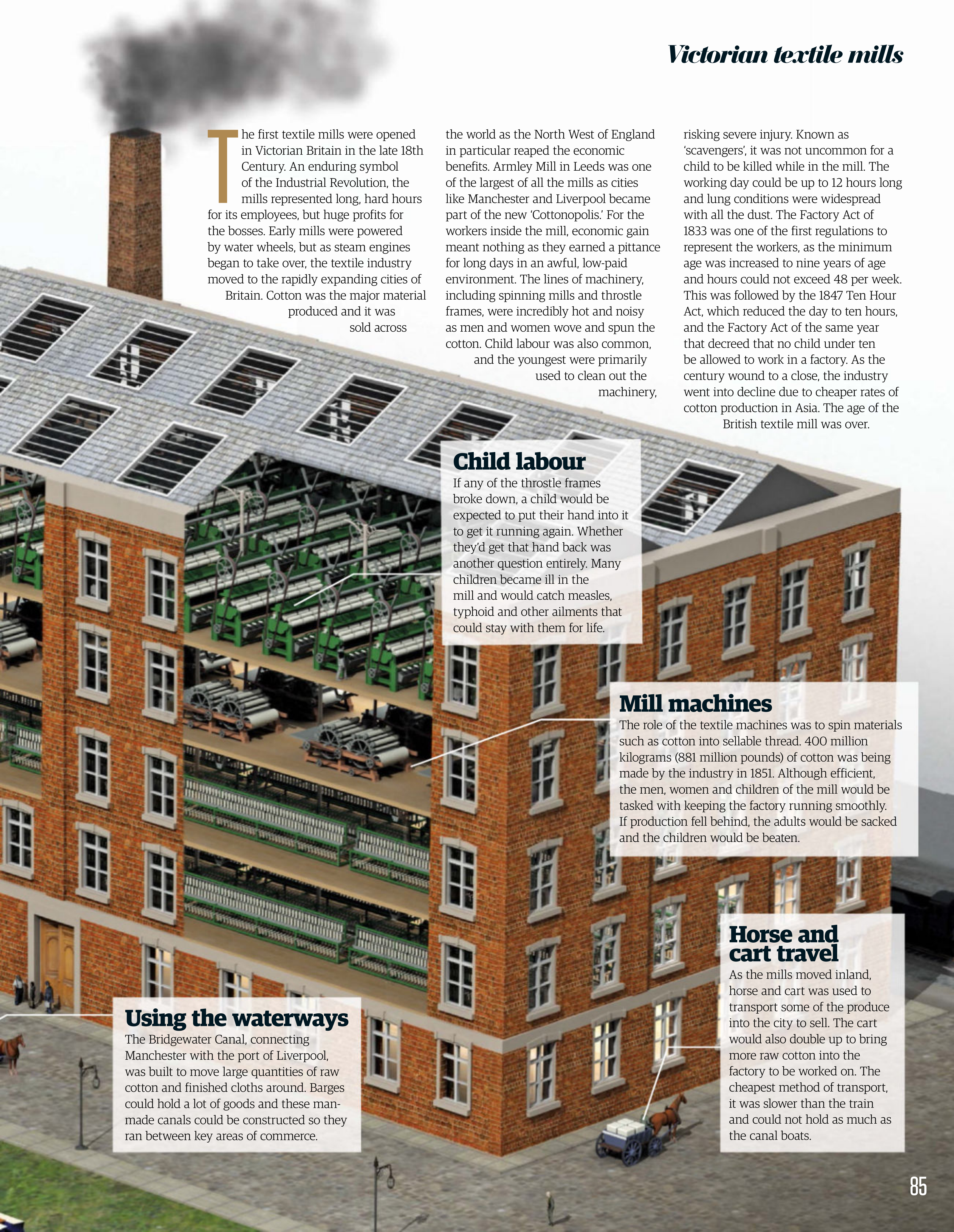
Worker residences

Walking to work was the only option, as transport was unaffordable. In the workers' small houses, whole families would share one room. Disease was spread easily in this life of squalor, without access to good food, clothes or medicine.

Workers

Living a stone's throw away from the mill, the factory workers would work six days a week with only Sunday off. The vast majority couldn't afford education for their children, so took them onto the factory floor.

The first textile mills were opened in Victorian Britain in the late 18th Century. An enduring symbol of the Industrial Revolution, the mills represented long, hard hours for its employees, but huge profits for the bosses. Early mills were powered by water wheels, but as steam engines began to take over, the textile industry moved to the rapidly expanding cities of Britain. Cotton was the major material produced and it was sold across the world as the North West of England in particular reaped the economic benefits. Armley Mill in Leeds was one of the largest of all the mills as cities like Manchester and Liverpool became part of the new 'Cottonopolis.' For the workers inside the mill, economic gain meant nothing as they earned a pittance for long days in an awful, low-paid environment. The lines of machinery, including spinning mills and throstle frames, were incredibly hot and noisy as men and women wove and spun the cotton. Child labour was also common, and the youngest were primarily used to clean out the machinery, risking severe injury. Known as 'scavengers', it was not uncommon for a child to be killed while in the mill. The working day could be up to 12 hours long and lung conditions were widespread with all the dust. The Factory Act of 1833 was one of the first regulations to represent the workers, as the minimum age was increased to nine years of age and hours could not exceed 48 per week. This was followed by the 1847 Ten Hour Act, which reduced the day to ten hours, and the Factory Act of the same year that decreed that no child under ten be allowed to work in a factory. As the century wound to a close, the industry went into decline due to cheaper rates of cotton production in Asia. The age of the British textile mill was over.



Child labour

If any of the throstle frames broke down, a child would be expected to put their hand into it to get it running again. Whether they'd get that hand back was another question entirely. Many children became ill in the mill and would catch measles, typhoid and other ailments that could stay with them for life.

Mill machines

The role of the textile machines was to spin materials such as cotton into sellable thread. 400 million kilograms (881 million pounds) of cotton was being made by the industry in 1851. Although efficient, the men, women and children of the mill would be tasked with keeping the factory running smoothly. If production fell behind, the adults would be sacked and the children would be beaten.

Using the waterways

The Bridgewater Canal, connecting Manchester with the port of Liverpool, was built to move large quantities of raw cotton and finished cloths around. Barges could hold a lot of goods and these man-made canals could be constructed so they ran between key areas of commerce.

Horse and cart travel

As the mills moved inland, horse and cart was used to transport some of the produce into the city to sell. The cart would also double up to bring more raw cotton into the factory to be worked on. The cheapest method of transport, it was slower than the train and could not hold as much as the canal boats.

Living conditions & health

The descent of workers to British cities caused an urban population boom that spelled a life spent fighting for survival in the slums

There can be no doubt that the shape of Britain was irrevocably altered during the Victorian period. Put simply, the population doubled from just fewer than 17 million in 1851 to 30.5 million in 1901. The Industrial Revolution drove a new era, and people moved to where work was availble, driven by poverty, disease and desperation.

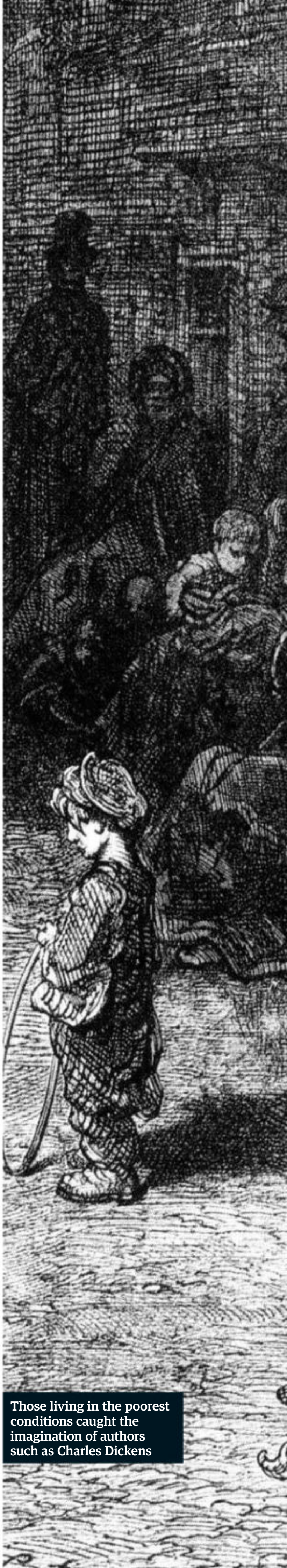
That city life was overcrowded is an understatement, as housing expansion struggled to keep up with demand. A manufacturer might build accommodation for their workers, but several families would still be found living under one roof. The urban landscape drastically altered as train lines were introduced and wealthier neighbourhoods moved, forcing the poorer classes into smaller and smaller areas. Housing sprung up as rows of tenements, with front facing windows only, while luxuries like warmth and running water were a distant dream for all but the privileged.

For the residents of the poorer neighbourhoods of Britain's cities, their living conditions were not just uncomfortable and cramped, they were the perfect breeding ground for disease. The shared water supply that came from a single standpipe would provide for up to several hundred people. The water would often come from a nearby river, which was likely riddled with waste that was seeping, if not actively being funnelled, into it.

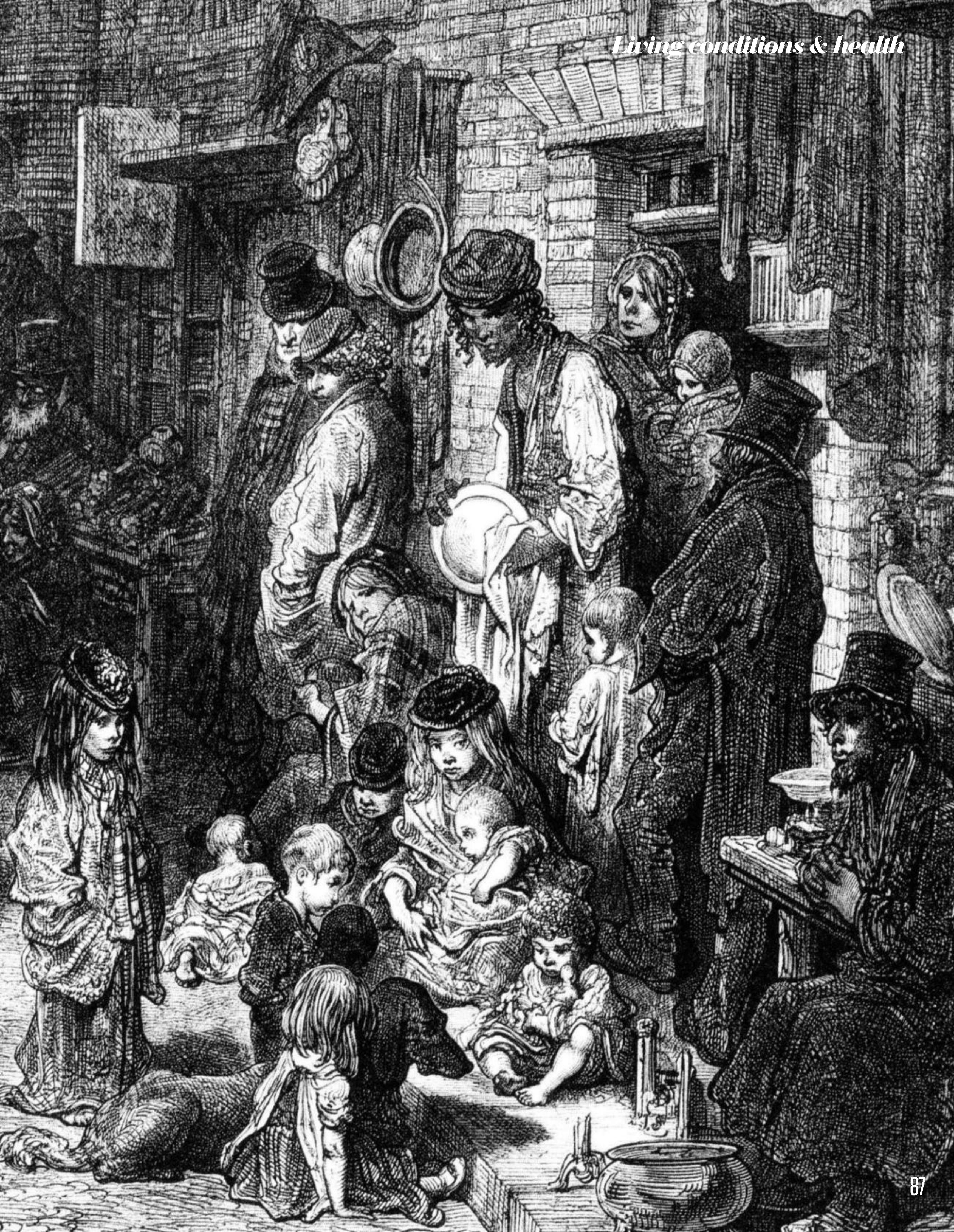
In the first half of the 19th Century, miasma was the most popular theory about contamination. Doctors believed that disease was transmitted through the air; an atmospheric evil that prompted home remedies like keeping your windows open at all times to ensure proper ventilation and leaving a bowl of water out that would soak up airborne germs and impurities.

But keeping windows open didn't help with the unavoidable question of sewage and waste disposal. Wealthy homes would have a well-tended outhouse that was frequently emptied. Jakesmen could be employed to carry the filth away, but many could not afford the service and suffered from careless landlords. With so many people sharing one or two facilities, sewage leaked into the streets, while cellars became cesspools as the overflowing effluence filtered through the poorly constructed pits and shoddy brickwork. It wasn't just oozing

> Between the 1830s and the 1860s, it is thought that cholera was responsible for 40,000 deaths in London



Those living in the poorest conditions caught the imagination of authors such as Charles Dickens



into their basements, however. It was also seeping into the water supply.

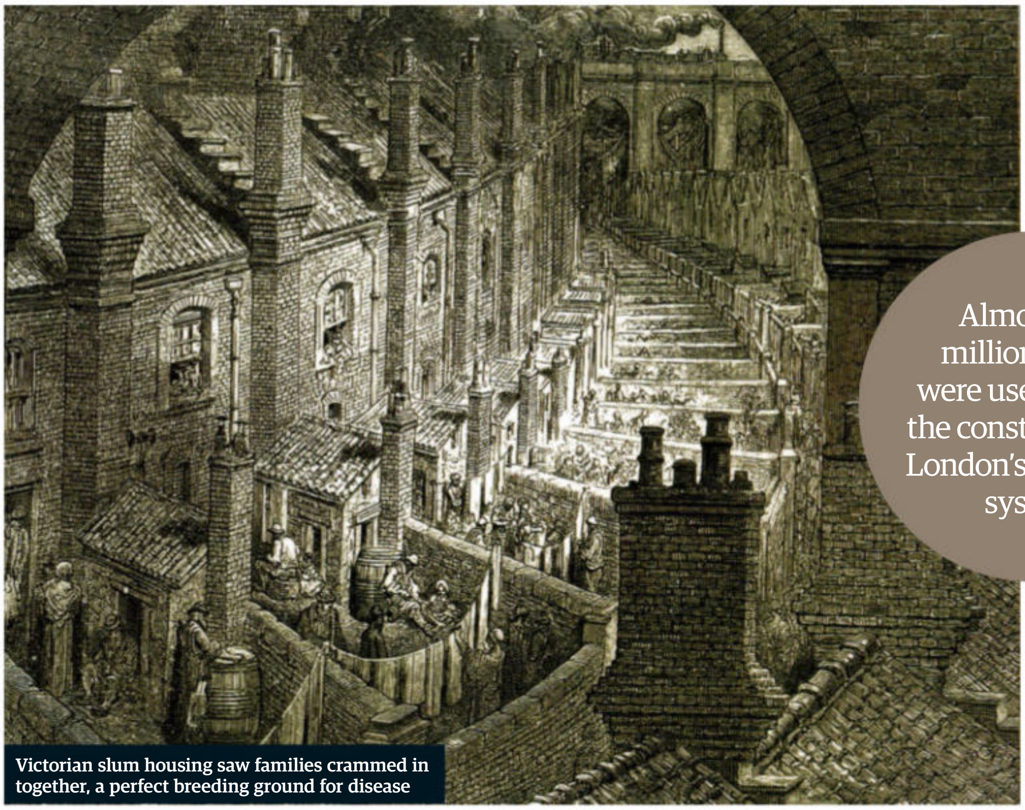
Disease was a constant and pressing concern in the slums, but it took the nation's first cholera outbreak in the early 19th Century to prompt a real investigation. Edwin Chadwick ceaselessly campaigned for improved sanitation in Britain's cities, publishing a nationwide study in 1842 after doctors, who had been commissioned to investigate conditions, had seen their findings ignored. In 1844, 31 of 50 towns investigated had impure or otherwise unsatisfactory water supplies. An 1849 study ruled that more than 5,000 of a sample group of 15,000 central London houses were classified as offensive and unhealthy. Still, it wasn't until another outbreak of cholera in 1848 that the Public Health Act was passed, creating a board of health with Chadwick as commissioner.

It wasn't perfect, as efforts to create local boards meant that there was little central control. Chadwick's bullish attitude also meant that he and the board were unpopular, and power was gradually stripped away from them until another cholera epidemic in 1865. The Sanitary Act in 1866 made sure that sewerage, street cleaning and water provision were the business of local authorities. A Royal Commission in 1868 was the start of a series of properly enforced efforts to create sanitary living conditions, including housing and pollution. Meanwhile, the 1875 Public Health Act went further and prompted real change.

Still working on the miasma theory of disease, the City of London made a great effort to displace the sewage in and under London's homes, but they didn't consider where it was going. In 1858, the legendary Great Stink of London hit as the Thames filled with human waste. As the stench hit Parliament, decisive action was called for, leading to the construction of the London sewerage system. Designed by Joseph Bazalgette, the network played a huge role in tackling the various epidemics of the time.

The idea of 'atmospheric' contagion was also starting to be challenged. The cholera outbreaks that spread through the slums like wildfire were studied by the trailblazing Dr John Snow. He pinpointed contaminated water as the biggest factor in these epidemics.

> "With so many people sharing one or two facilities, sewage leaked into the streets while cellars became cesspools"


Victorian slum housing saw families crammed in together, a perfect breeding ground for disease

His ground-breaking study of St Anne's Parish demonstrates how he discovered that sewage was leaking into well water, and that the "diluted dejections" of an infant who expired from diarrhoea were not identified as being cholera soon enough. Finally, the way the Victorians understood disease was changing. The following year, Snow convinced the board of guardians in Soho to remove the handle of Broad Street's water pump, leading to a rapid decline in the number of cholera cases. Nevertheless, there was still no shortage of ludicrous home remedies being practised.

Almost 318 million bricks were used during the construction of London's sewerage system

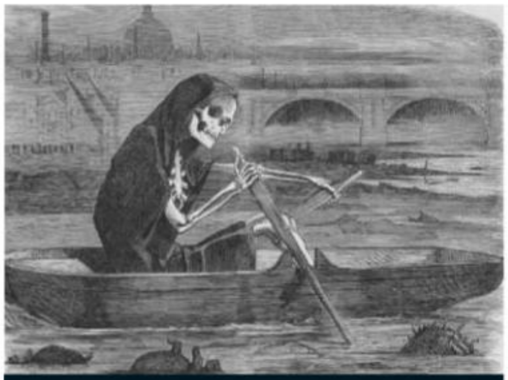
It wasn't just water placing the most vulnerable members of society at risk. Food was often adulterated, rotten or otherwise unsafe. Bread would typically contain chalk or alum (aluminium potassium phosphate) as a whitener, to which Snow attributed the shocking incidence of rickets in infants. Meanwhile, there were no rules in place to ensure meat was not sold contaminated and fruit was not sold rotten. All sorts of chemicals were added in attempts to alter their appearance,

Advances and developments

Anaesthetics
Anaesthesia was not a common practice in medicine until 1846, when ether began to be used. When James Simpson introduced chloroform in 1847, anaesthetics became more common. However, it wasn't until Dr John Snow used it on Queen Victoria following the birth of Prince Leopold in 1853 that the innovation became widely accepted.
1846-47

Cholera is in the water
One of the most important moments in the Victorian era was Dr John Snow's discovery that infected water was responsible for the swift and brutal cholera epidemics that blighted London. When the handle of the water spigot was removed from an afflicted area in Soho, the number of infected patients was reduced dramatically.
1854

London sewers
Following the Great Stink of London in 1858, during which chloride of lime-soaked sacking was hung outside Parliament, the government finally recognised the need for a proper sewage system. Designed by Joseph Bazalgette, 82 miles of brick-lined sewers stretched all over the city, keeping the city's waste moving.
1859-75



An illustration depicting the Great Stink of London, the final push to construct a proper sewer system

like red lead in Gloucester cheese or sulphate of iron in beer (to produce a foamy head). A study in 1863 found that a fifth of tested butchers' meat in England and Wales was diseased. Efforts began in 1860 to introduce legislation with the first Pure Food Act, but it wouldn't be effective until a second act was introduced in 1872.

Finding a way to feed your family and stay out of the workhouse required resourcefulness and good general health. On the street, the costermongers (men and women who made a living selling wares) were relatively lucky. Crossing-sweepers made their living clearing the way for the upper classes, some people hunted through rubbish to find items to sell, while some scoured the banks of the Thames for items of value. These people, predominantly children and old women, were known as mud-larks, who would sift through human waste as well as mud. They were not too far removed from the pure-finders, who sought for dog muck to sell to leather tanneries. Those working in mines or factories faced the risk of asthma, black lung, anaemia and a host of respiratory diseases, not to mention the fact that their ten to 12-hour workdays led to spinal and circulatory illnesses.

On the basis of miasma theory, all of these jobs would have exposed the workers to the risk of terrible disease. One of the most dangerous professions, however, was the oldest one. It's difficult to gauge exact numbers of those involved in prostitution, as the definition was much broader at the time (depending on the

JOIN THE TEMPERANCE SOCIETY TODAY!

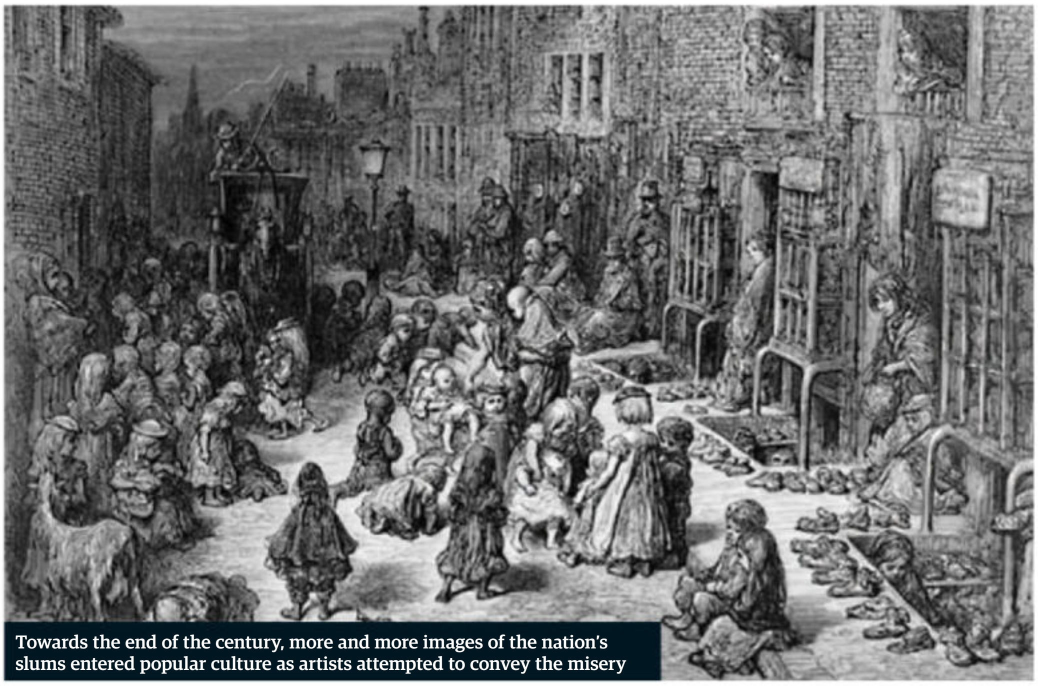
The temperance movement began before the Victorian age, but the era saw it gather momentum and backing as the Industrial Revolution began. From factory bosses concerned about the performance of their workers and local groups driven by religious zeal to wealthy philanthropists concerned about the public drunkenness, the Victorian era saw several strong and driven temperance groups appear.

The first total abstinence movement began in Preston in 1832, following the Beer Act of 1830 (which meant a license to sell beer cost just two guineas). It was here that the Temperance Pledge was signed by a group led by Joseph Livesey. It was one of his fellows who coined the word 'teetotalism'. With the rise in literacy, their printed polemics, many created by artist George Cruikshank, on the dangers of alcohol, like the famous *The Drunkard's Bible*, were read more and more widely.

The message? The first sip of alcohol was the slippery slope that led to a good family man losing his humanity, while sobriety was the path of piousness and usefulness. The members of the society presented themselves as the underdog, facing up to big business and sneers of the public.

Much of the temperance movement's momentum came from its supporters in the upper class, who were concerned with the wider problem of vice. These philanthropists were aware of the awful conditions in the slums of the cities and were looking for explanations as to why these people were living in such abject conditions. Alcohol provided them with the answer.

Towards the end of the first half of the century, the Temperance movement lost some of its support as the broader reasons for the horrifying conditions of the slums became clearer, but it would continue for decades to come.



Towards the end of the century, more and more images of the nation's slums entered popular culture as artists attempted to convey the misery

Antiseptics

Inspired by Pasteur's work, Joseph Lister believed that microbes in the air could be responsible for the deaths caused by infected wounds. When he used carbolic acid to sterilise wounds, the results were tremendous. Lister went on to introduce a carbolic acid spray in rooms in which surgery was being conducted.

1867-71

Public Health Act

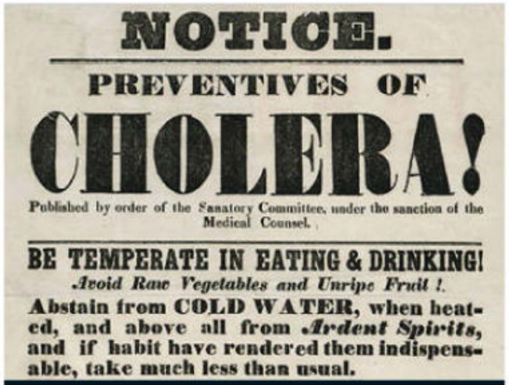
After decades of ineffectual efforts to improve public health, the government finally introduced the Public Health Act in 1875 that drew on the work of John Snow and Edwin Chadwick to address sewage, running water, housing, hygiene and pollution, and ensure local authorities took responsibility.

1875

The X-ray

One of the era's final but vital medical discoveries was the X-ray, which was accidentally discovered by German Wilhelm Conrad Röntgen. Suddenly, doctors could identify broken bones and other ailments. It was put to use just a year later.

1895



NOTICE.

PREVENTIVES OF

CHOLERA!

Published by order of the Sanatory Committee, under the sanction of the Medical Counsel.

BE TEMPERATE IN EATING & DRINKING!

Avoid Raw Vegetables and Unripe Fruit!

Abstain from COLD WATER, when heated, and above all from *Ardent Spirits*, and if habit have rendered them indispensable, take much less than usual.

Major epidemics

CHOLERA

Outbreaks of cholera from 1832 to 1866 killed **thousands**.

2,000 people died in one week in 1848.

A final outbreak occurred in **1866** due to slow progress on London's sewer systems.

SYPHILIS

In 1864, **one in three** servicemen that was unwell was suffering from VD.

Lock hospitals were introduced to house patients but conditions were poor and there was **no cure**.

The Contagious Diseases Act meant any woman suspected of being a prostitute could be **detained and examined**.

TYPHUS

Typhus was identified in the 1830s, with roughly **16,000** new cases a year from 1837-41.

With people crowded together and sharing the same water, **one person** could infect whole neighbourhoods.

Typhus is not to be confused with the equally deadly **typhoid**, which killed Prince Albert.

London's vital sewer works during construction

> "Any woman who was suspected of being a prostitute could be forcibly examined by a male doctor"

survey, unwed mothers may have been included, for example) but some estimates put the number in London at 80,000. With work for women typically paying less, than men's, prostitution was an inevitable choice for some women whose families could not support them, or who could not support their own. In the first half of the century, there was not the same stigma to prostitution, although reform groups in the latter half campaigned against it. The lucky ones could earn more than they would have elsewhere and even gain the means to start their own business. Needless to say, these women weren't all lucky.

For women working as prostitutes in areas like Whitechapel and Spitalfields, survival was paramount – and by no means guaranteed. Decades before the tabloid-friendly horrors of Jack the Ripper, outbreaks of syphilis were rife and there was no known cure. Inevitably, an infected woman would have no choice but to go back to work, leading to epidemics spreading quickly. The alternative may have been a lock hospital – an asylum for those with venereal diseases. Some felt that those suffering from syphilis didn't deserve treatment due to the nature of their illness.

However, the alarming number of cases made it clear that this problem couldn't be ignored by claiming it affected women with loose morals, especially when it hit the armed forces.

Conditions in the lock hospitals were notoriously awful, and the legal developments for treating venereal disease were not exactly considerate of the female victims. Indeed, the driving force behind these initiatives was the growing number of British servicemen suffering from VD, specifically gonorrhea and syphilis. The first Contagious Diseases Act was passed in 1864, which meant that any woman who was suspected of being a prostitute could be forcibly examined by a male doctor. If they were infected, they were to be sent to a lock hospital until they were cured, or else they would be sent to prison.

The act was supposedly aimed at protecting the armed forces, so it was limited to three garrison towns before expanding to 138 towns and parishes by 1869.

There was no mention of men being examined, and no evidence beyond the suspicion that a woman might be a prostitute was required. These acts went seemingly unnoticed until protests began in 1869, which continued until the House Of

> In the mid-19th Century, one of the most common medical treatments was a 'change of air', to the coast for example

Commons condemned the examination of women without their consent in 1883. The Contagious Diseases Act was finally repealed in 1886.

The living conditions of London's slums weren't going unnoticed either. From the beginning of the century, writers had bemoaned the plight of those living in the crowded and unsanitary conditions, but it wasn't until the 1850s that they really began to be publicised. Charles Dickens famously toured the London slums and channelled his experiences into novels like *Oliver Twist* and *Little Dorritt*, while Prime Minister William Gladstone worked with women of the night to such an extent that his motives were questioned. Dickens' portrayal of the "fallen woman" became one of the archetypes of the era – the poor damsel driven to dire choices by her terrible circumstances.

Journalists brought the story from the streets to the drawing rooms of the upper classes. Henry Mayhew wrote a series of articles that were collected as *London Labour And The London Poor*, for which he interviewed the men, women and children who worked on the city's streets. His work proved to be every bit as influential as that of Dickens in altering upper-class perceptions of those in the slums. The pressures forcing people into these areas was economic, rather than some deviance or weakness of moral character. Those in the upper and middle classes began to see this was not simply a problem that could be categorised and dismissed. Even the Jack the Ripper murders in 1888 helped raise awareness of the dangers faced by those living in areas like Whitechapel.

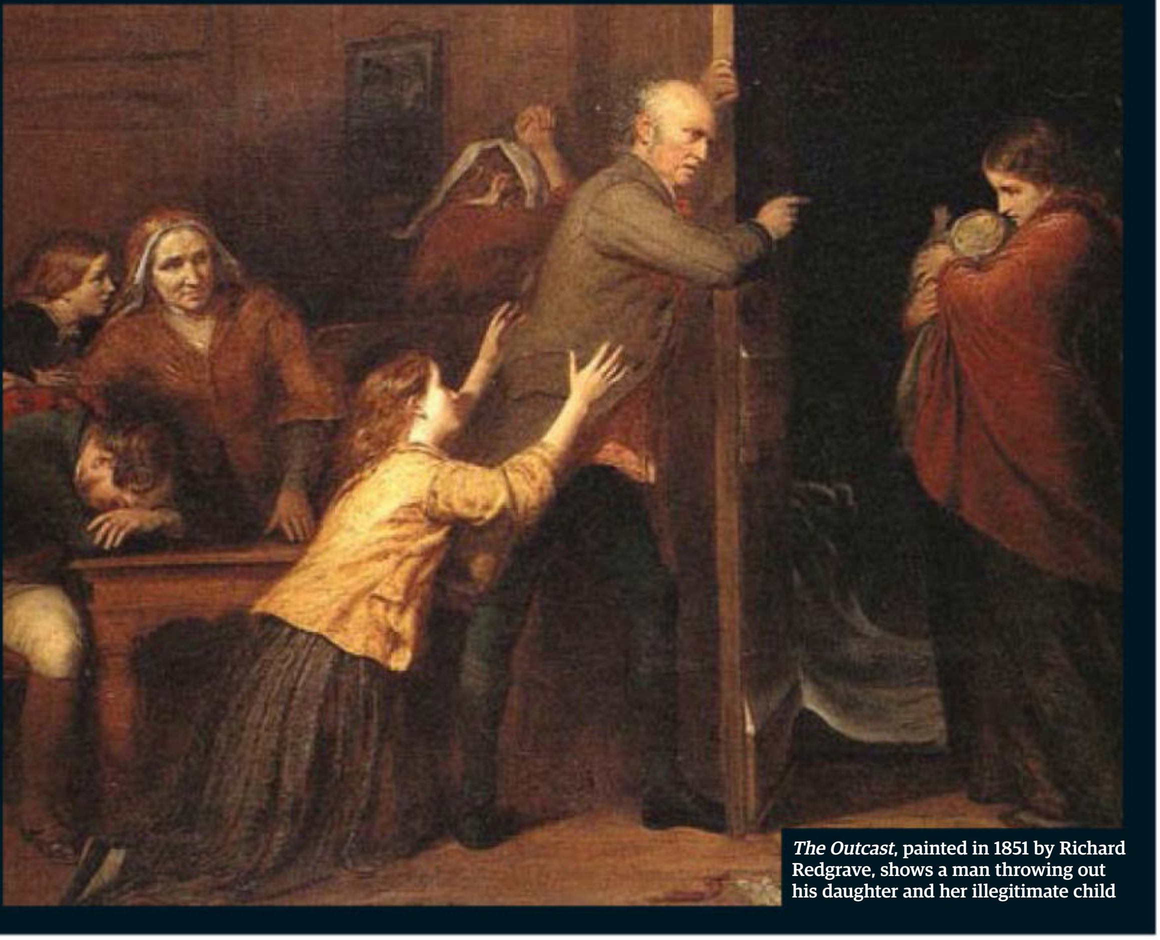
With growing publicity came a growing number of charitable causes targeted at the worst areas of London. Dickens himself founded Urania Cottage to support these fallen women. In 1860, Daniel Gilbert created Providence Row in Spitalfields with the help of the Sisters Of Mercy, and George Peabody set up a foundation in Commercial Street. These individual efforts certainly helped those who could make use of them, but it was a slow process of raising awareness of the conditions of these slums. Whitechapel, Bethnal Green, Spitalfields and The Old Nichol were all notorious, and changing attitudes saw that notoriety alter perceptions. From being where the worst people went to live, they became the worst place for people to live. The phenomenon of slumming began both as a way for the well off to see how the other half lived, but also to witness to extent of deprivation. With every passing year, more and more British citizens understood that something needed to be done.

The plight of the fallen woman

The 'fallen woman' was a staple of Victorian literature and one of the most widely supported charitable causes of the time. Charles Dickens and Prime Minister William Gladstone were tireless in their efforts to raise awareness of the hardships that faced these women who were forced, by various circumstances, to live and often work on the street.

There was a sense among the social elite at the time that those living and working in the cities' slums were hedonistic with low morals. Similarly, many believed that, once a woman had fallen, redemption was impossible. Those working to aid these women, such as Dickens with Urania Cottage, had to work hard to convince potential benefactors that these women were not beyond saving and that they could return to a morally correct way of living with the proper assistance. This did mean that assistance often came with strict guidelines, and Dickens and his co-founder Angela Burdett-Coutts carefully interviewed prospective beneficiaries of their care.

Efforts to correct the lifestyles of fallen women were at their worst and most monstrous in institutions like the Magdalene Asylums, several of which were found to have abused the women placed under their care in a horrifying attempt to correct their 'aberrant' behaviour. Fuelled by disgust and fear, the face of philanthropy could mask a truly horrifying callousness and revulsion.



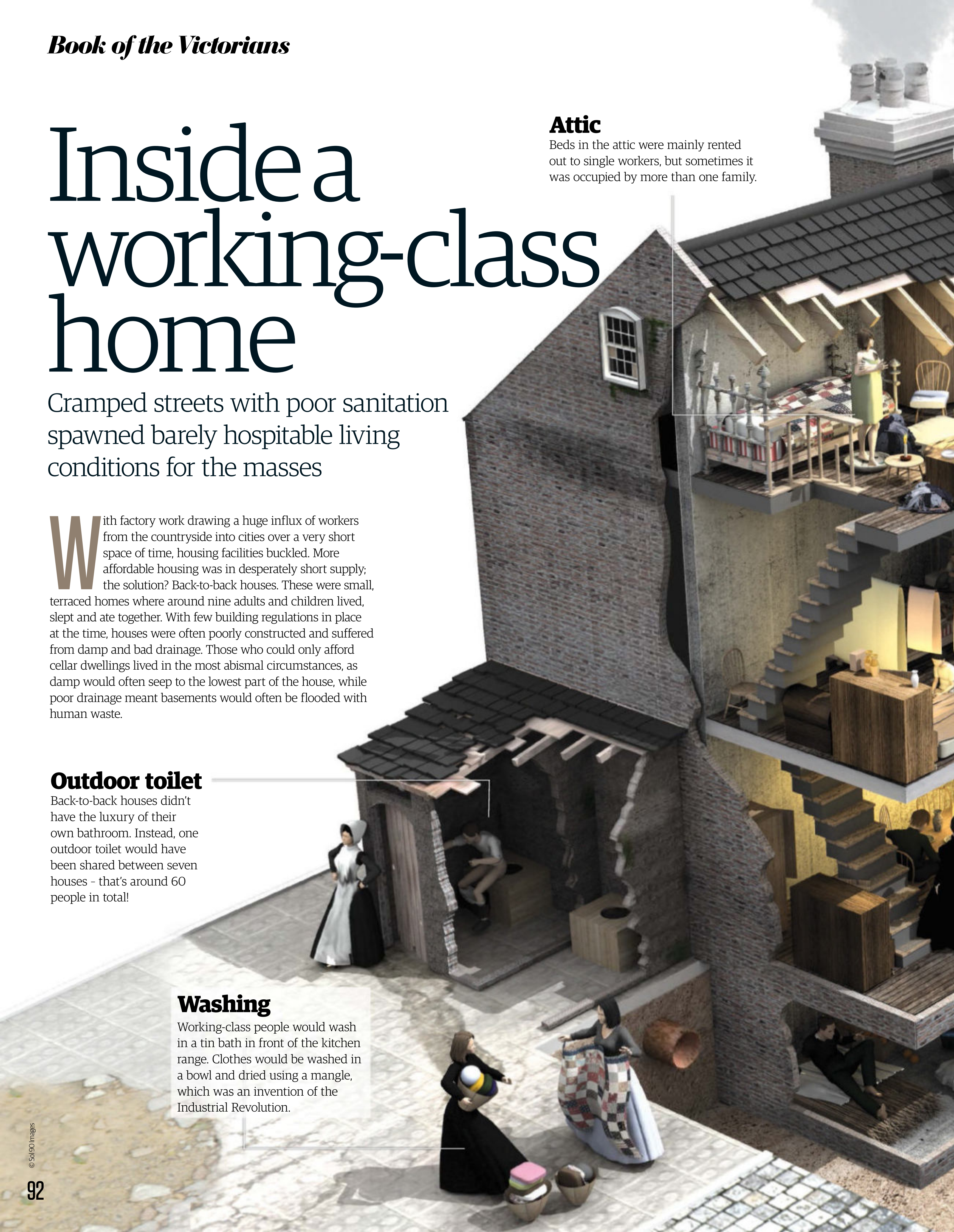
The Outcast, painted in 1851 by Richard Redgrave, shows a man throwing out his daughter and her illegitimate child

© Alamy

Inside a working-class home

Cramped streets with poor sanitation spawned barely hospitable living conditions for the masses

With factory work drawing a huge influx of workers from the countryside into cities over a very short space of time, housing facilities buckled. More affordable housing was in desperately short supply; the solution? Back-to-back houses. These were small, terraced homes where around nine adults and children lived, slept and ate together. With few building regulations in place at the time, houses were often poorly constructed and suffered from damp and bad drainage. Those who could only afford cellar dwellings lived in the most abismal circumstances, as damp would often seep to the lowest part of the house, while poor drainage meant basements would often be flooded with human waste.



Attic

Beds in the attic were mainly rented out to single workers, but sometimes it was occupied by more than one family.

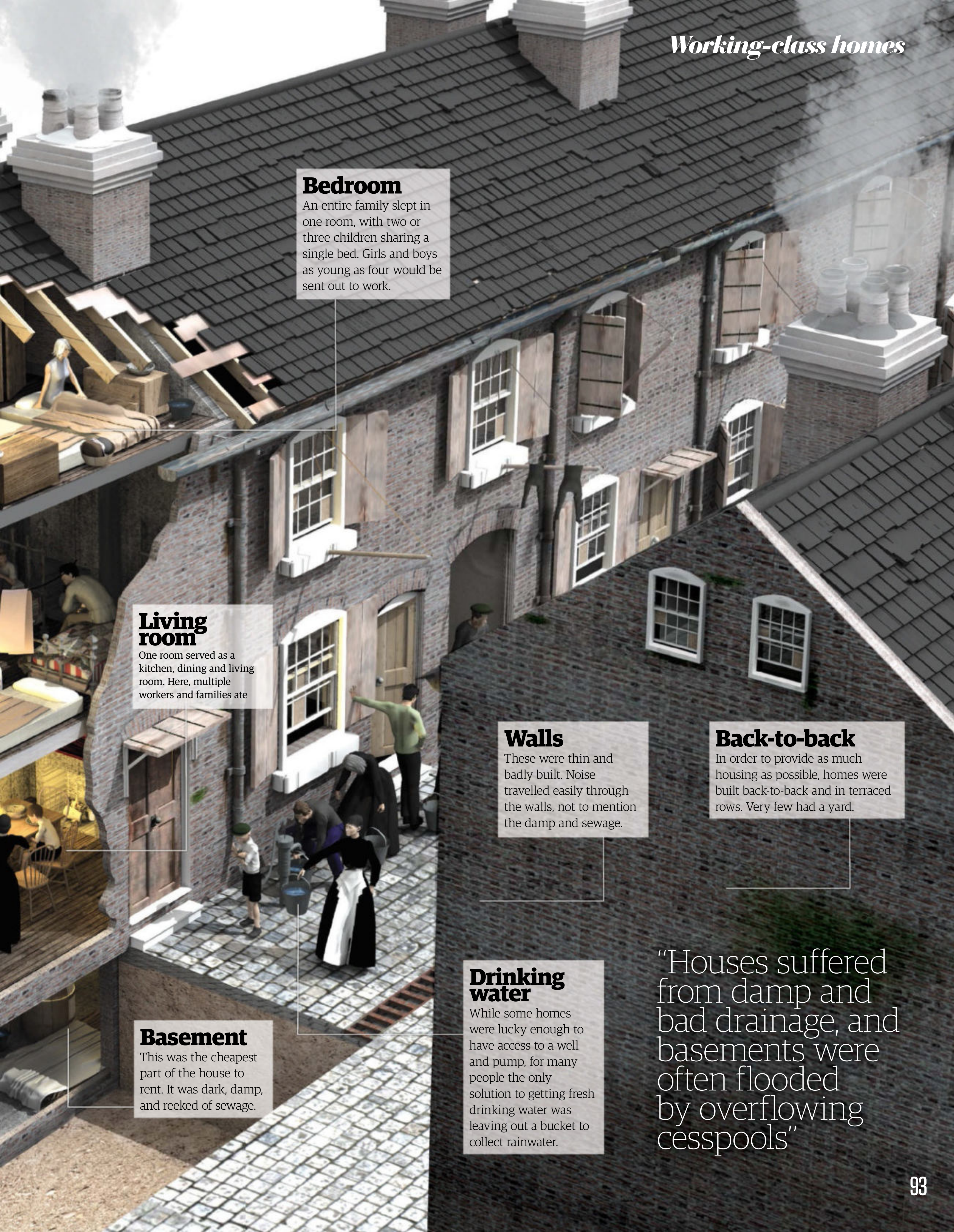
Outdoor toilet

Back-to-back houses didn't have the luxury of their own bathroom. Instead, one outdoor toilet would have been shared between seven houses – that's around 60 people in total!

Washing

Working-class people would wash in a tin bath in front of the kitchen range. Clothes would be washed in a bowl and dried using a mangle, which was an invention of the Industrial Revolution.

© Sol90 Images



Bedroom
An entire family slept in one room, with two or three children sharing a single bed. Girls and boys as young as four would be sent out to work.

Living room
One room served as a kitchen, dining and living room. Here, multiple workers and families ate

Walls
These were thin and badly built. Noise travelled easily through the walls, not to mention the damp and sewage.

Back-to-back
In order to provide as much housing as possible, homes were built back-to-back and in terraced rows. Very few had a yard.

Basement
This was the cheapest part of the house to rent. It was dark, damp, and reeked of sewage.

Drinking water
While some homes were lucky enough to have access to a well and pump, for many people the only solution to getting fresh drinking water was leaving out a bucket to collect rainwater.

> “Houses suffered from damp and bad drainage, and basements were often flooded by overflowing cesspools”

Work wasn't always centred around the blackboard. As schooling became more widespread, different types of education began to emerge

Education & empowerment

Class divisions caused extraordinary rifts in Victorian society, but soon power and influence would start to trickle down to the working class

From chalky blackboards and ink wells to the cane, school was a tough ordeal for the youth of Victorian Britain. But despite the hard knocks, a lot of progress in education was taking place, and by the end of the era, schools were in a much better state than before Queen Victoria came to the throne.

Unlike in the 21st Century, if you went to school in Victorian Britain, you were likely male and a member of the privileged classes in the country. These class boundaries were rigid and would normally determine your future, with children of the working class more likely to be found starting their lives toiling in a workhouse than learning in a classroom.

Often desperate for money, working-class families simply could not afford to send their children to school. The only alternative to working life was to send them to what was known as a 'ragged school'. Usually located in a room of a house or even an old barn, lessons held here had grown out of the tradition of Sunday schools run by the church. Meanwhile, infants from poorer families would be taught by older children.

School on a Sunday was introduced by philanthropist Robert Raikes in the late-18th Century, and by 1831, 1.25 million children in Britain attended one. It wasn't the state school system that would come later, but it was at least something. The state first began to get involved in education in the early part of the century, when in 1807 a bill was passed that would require every parish to have a school. However, the proposal was quashed by the House of Lords, which argued the bill did not take into account the interests of the church. This would be amended over the century with a series of Education Acts.

Higher up the social pyramid, wealthier families could pay school fees with ease, sending their children to grammar and public schools. Winchester College and Eton were the most renowned public schools, and only the richest could afford to attend them. Graduates from these schools would go on to become army leaders, industrialists, or any sort of big player in economics.

In 1869, the National Education League began campaigning for free education for every child in the country

Girls, meanwhile, would either be taught at home or sent to a 'dame school', where their learning would be overseen by an educated woman. But if not, it was still common practice for girls seek a wealthy partner, leaving them with no need for formal education. This was a faltering tradition, though. As educated women began to thrive, their influence in society swelled. The National Union of Women's Suffrage Societies was founded in 1897, but started off with a stumble as Queen Victoria denounced the need for it. It was often unseen among the wealthy that, back in the lower classes, young girls would often be dragged into the urban underworld of prostitution in the slums of London and other major cities.

The classroom of a Victorian school was a scary place to be. Up to 80 children could be found in one class and any misbehaviour, such as answering back or poor work, would be severely dealt with by the teacher. They would not hesitate to use a ruler or the dreaded cane or the humiliating dunce's hat to keep students in line. Even children suffering with mental disabilities were treated extremely poorly; very little was known about such afflictions and any unruly behaviour was certainly met with no sympathy or sentiment.

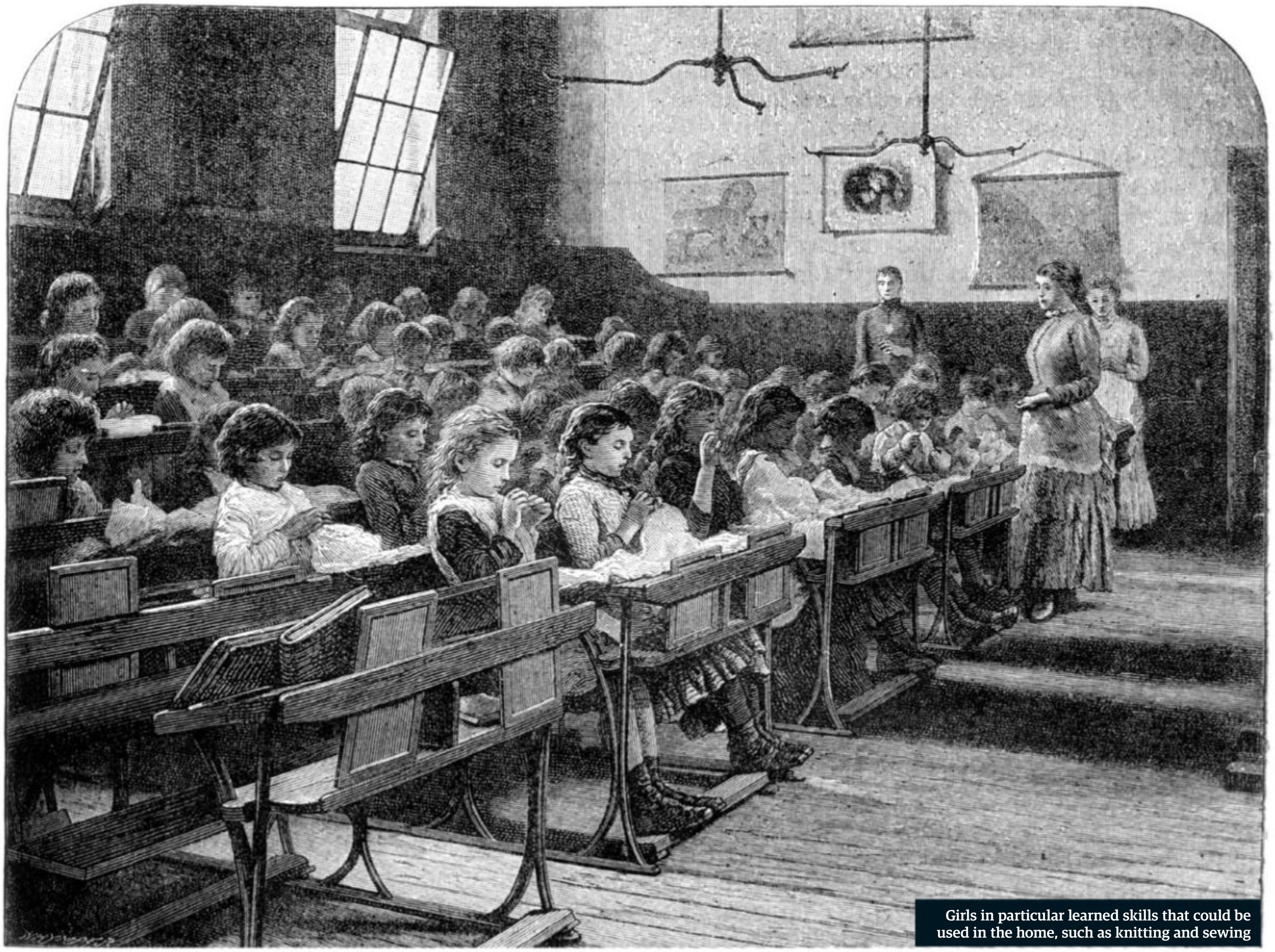
Owing to the low pay, more women than men chose to become teachers and they often learned as they worked as no training was required. The classroom itself was most likely a dark, dreary and uninspiring environment thanks to the lack of investment in the schools, and lessons would be a repetitive mix of copying from the blackboard and endless reciting of times tables. Work would often be scratched onto slate rather than paper to save on costs. Other equipment included an abacus or an ink well, which accompanied lessons in the three Rs: reading, writing and arithmetic.

Occasionally, the pupils had the chance to go outside and take part in the Victorian version of Physical Education, the drill. A mixture of running, jumping and lifting weights, this would be the only time the students got out of the classroom, save for the odd assembly and, of course, lunch. If they were lucky, the school day, which usually began at nine in the morning and didn't end until five at night, would be broken up by a short playtime, in which the children would play marbles, hopscotch, British bulldog and tag.

As working boys got older, they could always apply for an apprenticeship. This mutually beneficial arrangement offered masters an unpaid workforce, while the boys would learn valuable life skills. The system was marred by scandal and ill-treatment, but offered a potential route out of squalor and a narrowing of class divisions.

Higher up the ladder, the universities of Britain only allowed the very top end of society to grace its halls. Applicants to Oxford and Cambridge had to

"Lessons would be a repetitive mix of copying from the blackboard and endless reciting of times tables"



Girls in particular learned skills that could be used in the home, such as knitting and sewing

SCHOOL DAY

8.50AM
Bell rings and students line up according to height. Boys enter the classroom first. Students stand to attention at their desks in silence. Teacher says "good morning", students say "good morning." The boys bow and the girls curtsy. Teacher instructs us to stand in front of our chairs.

9AM
Teacher calls out our names. Each bows or curtsies and answers "present."Teacher inspects that we are properly dressed. Teacher asks about absences and instructs us on punctuality before threatening the use of the cane if late.

9.30AM
Study of poetry recitation. Students selected at random to recite poem, then group recites in unison while teacher taps cane on table to keep time.

9.45AM
Non-Christian children asked to leave the room, prayers are then said.

9.50AM
Class begins with discussion on humbleness, We are instructed that we come to school in preparation for employment and instructed on the school rules (below).

10AM
Next arithmetic class.

10.20AM
Recess.

10.35AM
The next class is spelling. The 'monitors' are asked to hand out the spelling scripts. Teacher instructs us to sit up straight with palms down on the desk, while we repeat in unison the words on the spelling list.
We then review the vowels.
We are then asked to read in unison a piece selected by the teacher. When done, the monitors collect the spelling scripts.

10.50AM
The next class is on writing. The monitors pass out the writing scripts, slate and chalk. We learn to write in 'copperplate' style. Emphasis is placed on the importance of good handwriting for those wanting to become a clerk. We are advised not to 'blot' our copy books.

11.15AM
Monitors collect all materials and we recite the alphabet. We are then instructed to copy the spelling words we learned earlier in the day into our copy book.

11.50AM
We now receive our reading scripts and are instructed to read one-by-one. If we lose our place, teacher tells us we will be punished.

12.10AM
Non-Christians leave and prayers are recited said again before we are dismissed for lunch.

2PM
Students line up to be greeted by teacher. Our hands and shoes are inspected as each of us are again called by name.

2.20PM
Drill time, similar to parade march.

2.45PM
Object lesson: The Potato
Teacher instructs us about the potato, what family it's from, and how it grows.
Students now are asked one by one what we've learned. Teacher then asks us to write about the potato as a food.

2.50PM
Play time.

3.05PM
Students return to the classroom. The boys are taught technical drawings and the girls needle work.

3.30PM
Class is dismissed.

RULES

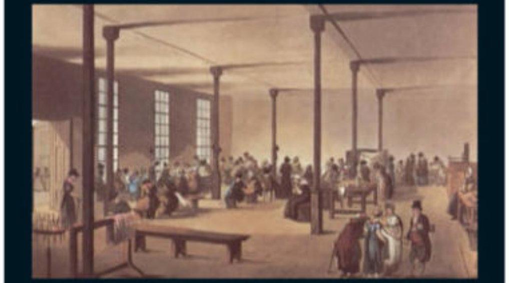
1. Students must stand up to answer questions and wait for permission to speak.
2. Students must call their teachers "sir" or "miss" or "mrs."
3. Students must stand when an adult enters the room.
4. Students must use their right hand at all times for writing.
5. Girls will learn needlework and boys will learn technical drawing.
6. Prizes will be given for good attendance.
7. Students must not put their hands up unless told they can do so.
8. Students must not ask questions.
9. Talking and fidgeting will be punished.
10. Children who are truant, behave badly or do poor work will be caned.

Education Reforms

To improve the standards of education, a series of acts were passed to push through reform across the country

1833 Factory Act

Put in place a year after the 1832 Reform Act, this decree focused on the ill treatment of children in the workplace. It drew comparisons between the use of children in the workplace and slavery. The result was a ban on children under nine working in factories and a maximum working day of eight hours for youths up to 13. In addition, children would receive schooling for two hours a day.



1844 Factory Act

This act passed a law requiring children who worked in factories to be given six half days of schooling every week. To allow for this, the weekly working hours for children between eight and 13 were further reduced. Free 'ragged schools' were set up to provide this basic education for the orphans and very poor children in 19th-Century Britain. The distribution of girls' schools was still limited, but this was changed under the Endowed Schools Act of 1869.

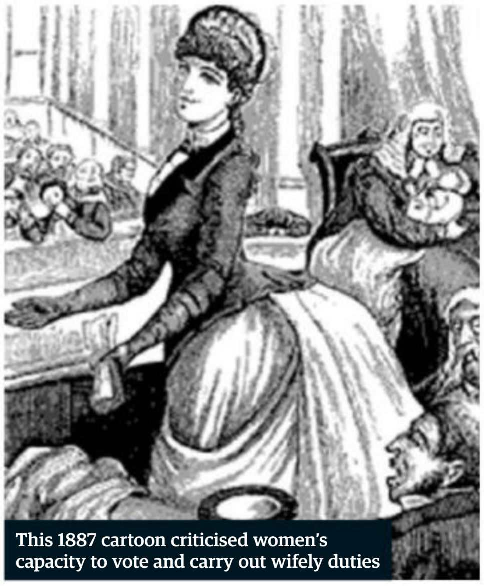
1870 Education Act

Also known as the Forster's Education Act, this new policy required every town in Britain to provide schools for children aged five to 12. It was the first piece of legislation to deal with the provision of education. A year prior to this act, the National Education League was formed, which campaigned for free and non-religious education for all children.

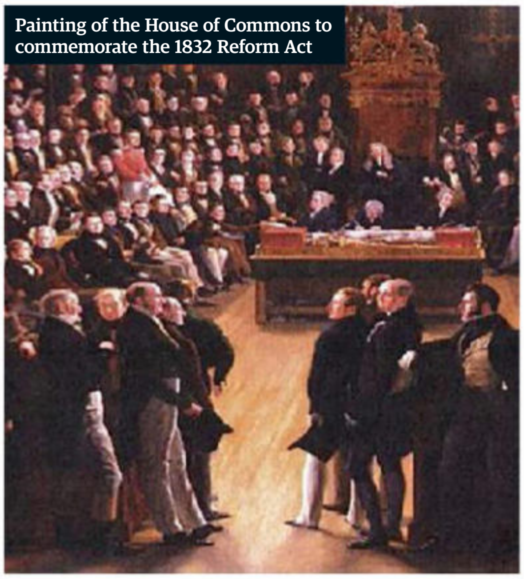
Elementary Education 1880

There was further reform ten years on from the 1870 Education Act, as school became compulsory up until the age of ten. This was extended to 12 in 1889 and, two years on from that, all schools were made free to attend. This stopped truancy, as many children were pulled out of school hours to earn money in their place of work. A further act in 1893 helped establish schools for blind and deaf children.

Educational standards would continue to improve after the Victorian period



This 1887 cartoon criticised women's capacity to vote and carry out wifely duties



Painting of the House of Commons to commemorate the 1832 Reform Act

be from a particular background, which meant only a narrow section of society was represented by its scholars. For the majority who weren't quite eligible for Oxbridge, London University was formed from a merging of colleges in 1836, followed by Owens College in Manchester in 1851 and Birmingham University and 1900. They were, however, still highly exclusive institutions. University was strictly male-only until 1878, when London University admitted women to the Bedford and Royal Holloway colleges for the first time. It was not until 1899 that free education in primary schools became available, while secondary schools didn't become free until 1902, after Queen Victoria's death.

It may seem counter intuitive, but the birth of women's suffrage owes a lot to a lack of education reform for females in Victorian Britain. The Langham Place Group was one of the first societies to speak up about the lack of women in higher education. Established by Barbara Leigh Smith and

Getting the vote

An outdated political system and serious under-representation of Britain's diverse population spelled a turning point for the politicisation of the lower classes

In the early part of the Victorian era, only a select few were allowed to vote (less than three per cent in 1780). Before 1832, only men above the age of 21 had the power to vote provided they owned a property valued at over a certain amount. Essentially, only people regarded as having 'a stake in the country' (property owners and taxpayers) had this valuable right. Politics was completely unbalanced, with tiny boroughs able to elect more MPs than large industrial cities like Birmingham and Manchester. There were many false dawns to change, such as the 1819 Peterloo Massacre, before the desire for change had been channelled into the Reform Act of 1832. This act put the wheels in motion for something feared by many in the upper class since the French Revolution: the sharing of power. The act itself only made minor changes, but it was a step in the right direction. Reformist movements such as the Chartists put added pressure on the government for change, but it wasn't until the 1867 Parliamentary Reform Act that substantial amendments were made. Introduced by Disraeli's Conservative government, the decree extended the electorate to 2.5 million. The next major step was in 1884; two in three men now had the vote, but this was still only 18 per cent of the population. This is how it stayed until the end of the Victorian era, but the seed was planted and momentum was growing for further reforms that would – after much struggle – come to extended the electorate to include the entire adult population.

Bessie Rayner Parkes, the society would be joined by a young Millicent Fawcett, who later became the leader of the Suffragist movement. Their type of liberal feminism succeeded in creating the first college for women, Girton, which was soon followed by North London Collegiate School and Cheltenham Ladies' College.

The movement's supporters believed access to higher education would make women more effective wives, mothers and teachers, and afford them the same opportunities as men. The clergy were the main opposition, but disapproval also came from doctors and scientists. Some even believed that higher education would be too much for women, who would become thin and weak and suffer ill health if they studied too much. Research by women's colleges soon disproved this theory.

Facilities and opportunities for women also lagged behind, but a key moment for suffrage was in 1890, when Millicent Fawcett's daughter, Philippa, beat a top male student in a Mathematics Tripos course. Despite the drive for equal access to education, women were still unable to get a degree regardless of their intellect. This was purely due to the worry that a degree would give women more of a say on voting rights. This would not be overturned at Cambridge or Oxford until well into the 20th Century.

As a strong icon for women, it is strange to think that Queen Victoria opposed women's suffrage so strongly that she declared the whole idea "mad, wicked folly." She did, however, support career opportunities for women and headed the Society for Promoting the Employment of Women. The main roadblock in the pursuit for equal rights was the notion of 'coverture'. Referring to the woman's loss of rights upon marriage, when they would be transferred to her new husband, it wasn't until the 1882 Married Women's Property Act that women could begin taking control of their own circumstances. Most notably, the law allowed women to retain the rights to their own property. Such increased rights for women gave opened up opportunities to get involved in work and politics, while the Suffragists and later the Suffragettes continued to campaign for equal rights in the latter half of the century and into the next.

Sowing the seeds for suffrage

The first suffrage movements can be traced back to 1867, when organisations aimed at giving women equal representation first emerged in British cities. Soon they would merge under one banner known as the National Society for Women's Suffrage, the NUWSS.

As women entered the world of work, they were paid significantly less than men, despite working the same hours in the same roles. Many working class women fell into prostitution just to pay the bills.

As well as the NUWSS, the Women's Franchise League (WFL) and the Women's Emancipation Union (WEU) were formed, and individuals such as Millicent Fawcett and the Pankhursts began to make their voices heard. The march to equal rights was a long one, with vociferous opposition from many men and women alike. Even Queen Victoria herself believed that women were incapable of handling the responsibility.

As the 20th Century dawned, so did a new breed of suffrage led by the Women's Social and Political Union (WSPU), who tried to accelerate the slow progress for rights by making campaigning efforts more and more extreme.

An electoral loophole allowed women who paid taxes the right to vote from 1869, but the vote was only finally extended in 1918 when all men over 21 and women over 30 were allowed the vote. This was extended to all women ten years later in the Equal Franchise Act.

"Some believed higher education would be too much for women, who would become weak if they studied too much"

The gathering on Kennington Common in 1848 produced 6 million signatures on a petition to extend the vote

Involvement in politics for anyone other that upper-class gentlemen was nonexistent. The Reform Act of 1832 was, however, paving the way for changes by granting 18 per cent of the adult male population the right to vote and creating more constituencies. This win by the Whig government saw the electorate extend from 366,000 to 650,000. A further boost came in 1867 with the Representation of the People Act, which gave the vote to more than 2 million men in England and Wales. Another act in 1884 secured the vote for two-thirds of the adult male population as laissez-faire politics dwindled.

The passing of these revolutionary acts was partly down to the pressure put on Parliament by the Chartist movement. Led by Feargus O'Connor, Chartism represented the working-class voice, and it was disliked by every person who already had the vote. On 10 April 1848, 6 million signatures were presented to Parliament after a mass meeting on Kennington Common. Revolution never materialised, but there were frequent demonstrations and Queen Victoria was even briefly moved to the Isle of Wight due to fears for her safety in London.

The Newport Uprising of 1839 and the 1842 General Strike put further pressure on the government. Politics was fast becoming a nationwide topic of conversation, not just among the wealthy elite. Even though the Chartists disbanded, their work had been done. Gladstone's liberalism was declining in favour of Disraeli's interventionist policies. At long last, the masses from all the classes were having their voice heard.

The rule of law

Crippled by the burden of the under-privileged, city life spawned a grisly conflict between the criminal class and a fledgling police force

As Queen Victoria exerted control over a wider and wider dominion, England's influence over the world spread like a blot of spilt ink. This was a dark mark that began to seep into the houses and alleyways of the country's overpopulated cities. Executions of dastardly criminals drew increasingly large crowds, while headlines warned of the crime wave washing over the country. Thieves lingered in shaded alleys, there were violent acts of garrotting against the rich and influential, and a well-dressed man who killed for fun was known only by his eerie nickname, Jack the Ripper.

The Industrial Revolution, with its smoke-spewing factories, created a buzz of excitement in the cities, but life was not so full of opportunities for the lower-class workers. As more families flooded into the cramped cities, poverty thrived. It was soon followed by its frequent bedfellow, crime.

Rookeries sprung up around London – nests of winding alleys, dead ends and shadowed corners where thieves, prostitutes and cheats could scheme and fester. They were a den of gloomy places for criminals to hide, and a twisted maze in which to shake off the police. One of the central breeding grounds for this new and dangerous class was the neighbourhood of Whitechapel, along with the surrounding areas of Bethnal Green, Wapping and Mile End, not to forget the ever-growing slums of Spitalfields. These run-down and over-populated places became cut off from the rest of the city, and crime flourished.

Children born in these dens of decay had little hope of leading an honest life, else face the cruel and dangerous conditions of the workhouse. Better to take a chance on the short and fast life of a criminal than the inevitable poverty that hung all around them like the thick black smoke that covered the city. Until 1870 there was no compulsory education, so orphaned, abandoned or poverty-stricken youngsters gained a very different set of skills on the streets. As they grew up, the street urchins outgrew the silken handkerchiefs and measly rewards at the mercy of their masters. The common path for the older pickpocket was to join the swell mob. These older, experienced crooks were debonair criminals who earned the trust of their victims before bleeding them dry.

On paper, it seemed Victorian London was enjoying the safest period of its history, but in reality a lack of faith in the police left many crimes unreported, and all peace-loving citizens knew to keep their wits about them, else leave certain areas significantly lighter than they entered them.

On 20 July 1829, Peel approved the establishment of a force of 895 constables, 88 sergeants, 20 inspectors and 8 superintendents

Birth of the Metropolitan Police

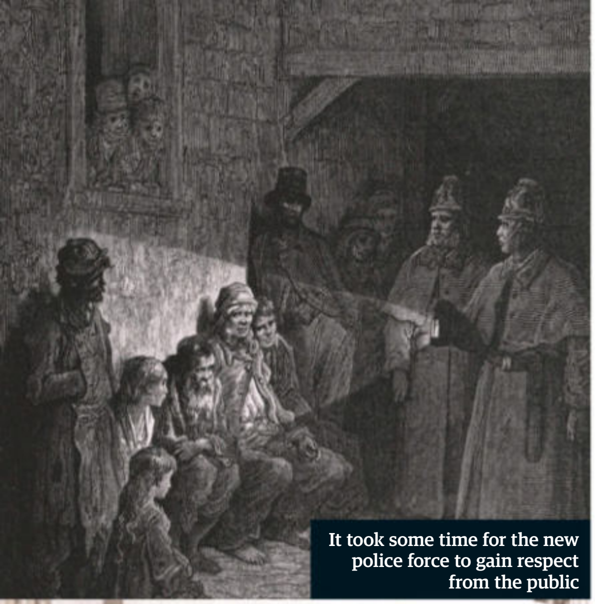
As crime became organised and social disorder grew, it put an immense strain on the dated Tudor system of policing. Prior to the Metropolitan Police Act introduced by home secretary Robert Peel in 1829, small parishes and market towns only had a constable and the local watch and ward to maintain order. Meanwhile, in London, the Bow Street runners, part publicly funded detectives, became the first incarnation of what is known today as a professional police force. When Peel's Metropolitan Police Force took to the streets of London in 1829, it was to a city very much in need of law and order.

1,000 new policemen were hired to supplement the existing 400. They were given weekly pay and distinctive bottle-blue uniforms; policing became a full-time profession with one central goal – the detection and prevention of crime. The force was specially designed to represent a neutral good – they were distanced from the military and were armed only with a truncheon and rattle (though some did later carry flintlock pistols). Despite Peel's best efforts, the police were initially not well liked. Many citizens saw them as a threat to civil liberties and they earned unfavourable nicknames such as 'blue devils' and 'Peel's bloody gang'. Despite their focus being to prevent disorder, many policemen were attacked, impaled, blinded and even killed. Even with the thorough selection process wannabe officers underwent, many of them were arrested for being drunk on duty, while others were found guilty of corruption. The very first policeman was sacked after just four hours for being drunk.

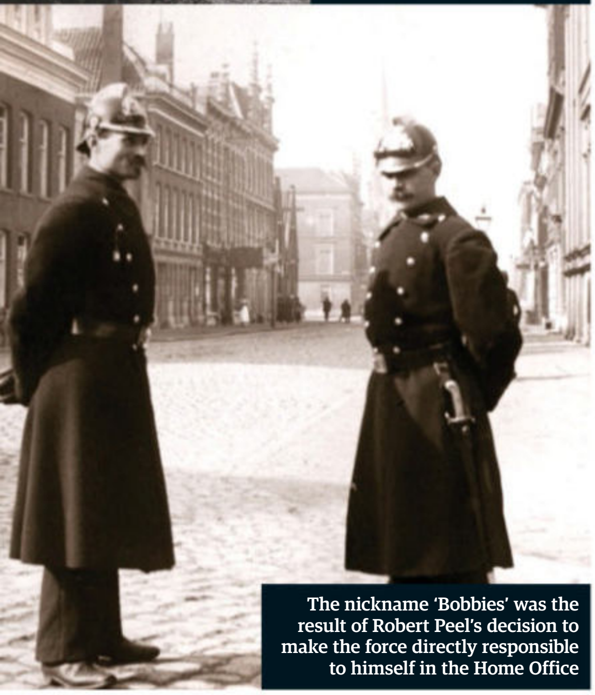
Despite the negative public reaction, the preventative measures used by the police were successful and crime did appear to decline. It is certain that the presence of police dissuaded criminals, but often this merely pushed them into the areas of London where the police did not operate. Wandsworth attracted so many criminals eager to escape the law that it became known as 'Black Wandsworth'. Many boroughs in England and Wales as a whole were hesitant to set up their own forces, and by 1848, 22 boroughs still had no official police force. Although implementation was slow, eventually police forces spread across the country, and in 1856, 73,240 people were arrested in London alone.

For those found guilty, a combination of backbreaking work and mind-numbing monotony awaited in the gaols. The Victorian era was a time of dramatic change in the prison system and new techniques were being employed across the country. Hulks – old sailing ships originally used to hold prisoners to be transported – were increasingly used to house ordinary prisoners. Conditions on the hulks were horrific and cholera was rife, as filthy polluted water from the Thames was used for washing and drinking. Techniques of isolation and segregation were employed to encourage reflection. At Pentonville Prison (dubbed a 'convict academy'), prisoners were stripped of their names and referred to by their cell numbers on a brass badge pinned to their chest. They wore a brown cloth cap with a mask that covered their faces – their voices and stories hidden from the world.

Hard labour was first employed as a way to encourage productivity from prisoners, with the treadmill, a large cylinder with steps that the prisoners monotonously climbed for up to eight hours a day, producing flour for the prison to sell. However, in the later part of the 19th Century,



It took some time for the new police force to gain respect from the public



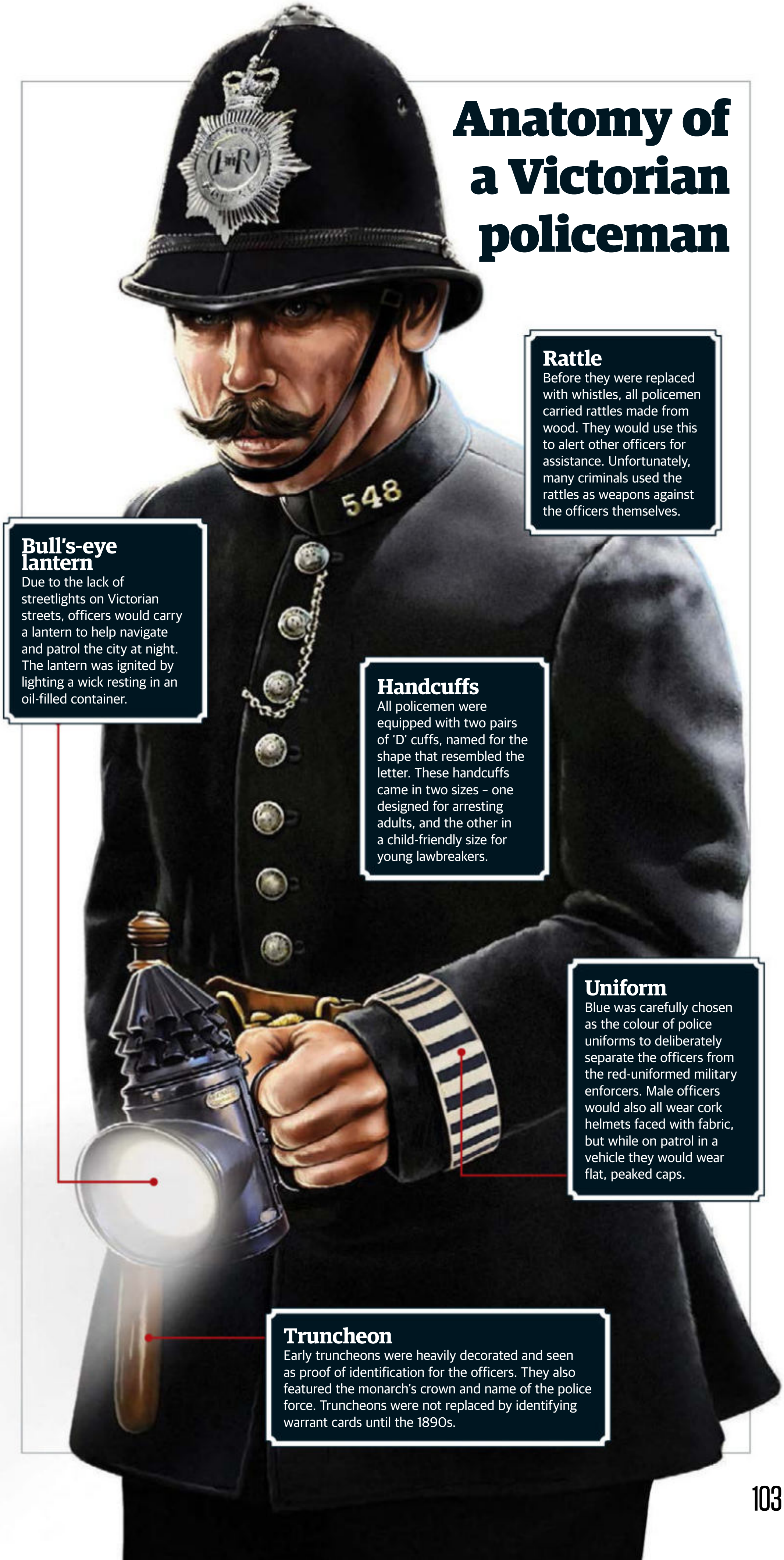
The nickname 'Bobbies' was the result of Robert Peel's decision to make the force directly responsible to himself in the Home Office

there was no end product for this back-breaking task and it, along with a host of other mindless exercises, was designed only to degrade and break the prisoners' spirits. The gaols wished to establish themselves as a spectre of pain and suffering to deter criminals. Because the poor outside were suffering under terrible conditions, the government were keen that the prisons represented a bleaker outlook than the workhouse.

But the cold, bare cells of the gaols were preferable to the grim image of the hangman's noose. Public hangings attracted large crowds up to the day they were outlawed. In one particularly grisly case, the condemned William Bousfield avoided execution by mounting his feet on the sides of the drop. After four more unsuccessful attempts, the hangman leapt into the pit beneath the scaffold and hung on to the prisoner's legs.

As the century came to a close, more liberal ideas of reform began to play a part in penal policy, with doctors and psychiatrists starting to interact closely with prisoners. However, it would take some time to shake the image of these criminals as an incurable social evil.

Anatomy of a Victorian policeman



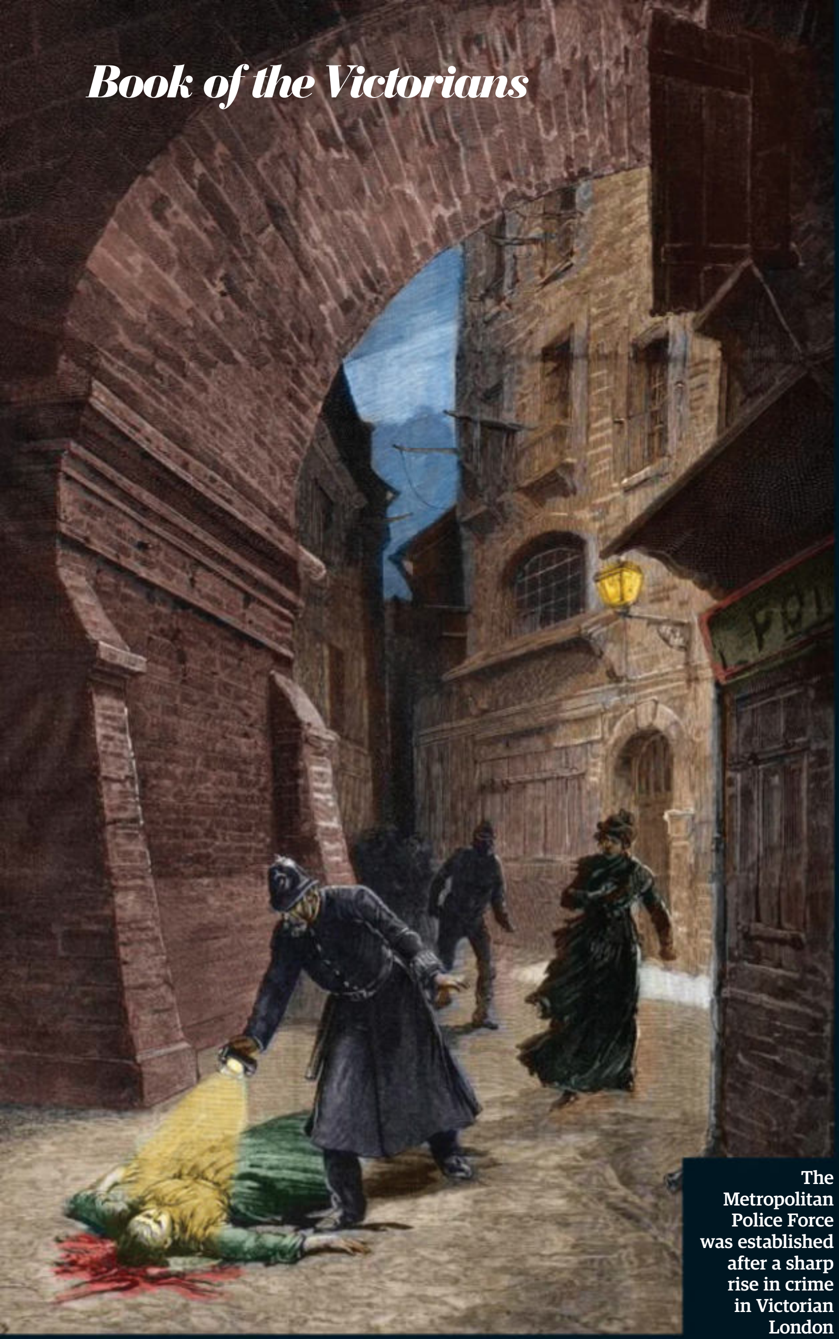
Rattle
Before they were replaced with whistles, all policemen carried rattles made from wood. They would use this to alert other officers for assistance. Unfortunately, many criminals used the rattles as weapons against the officers themselves.

Bull's-eye lantern
Due to the lack of streetlights on Victorian streets, officers would carry a lantern to help navigate and patrol the city at night. The lantern was ignited by lighting a wick resting in an oil-filled container.

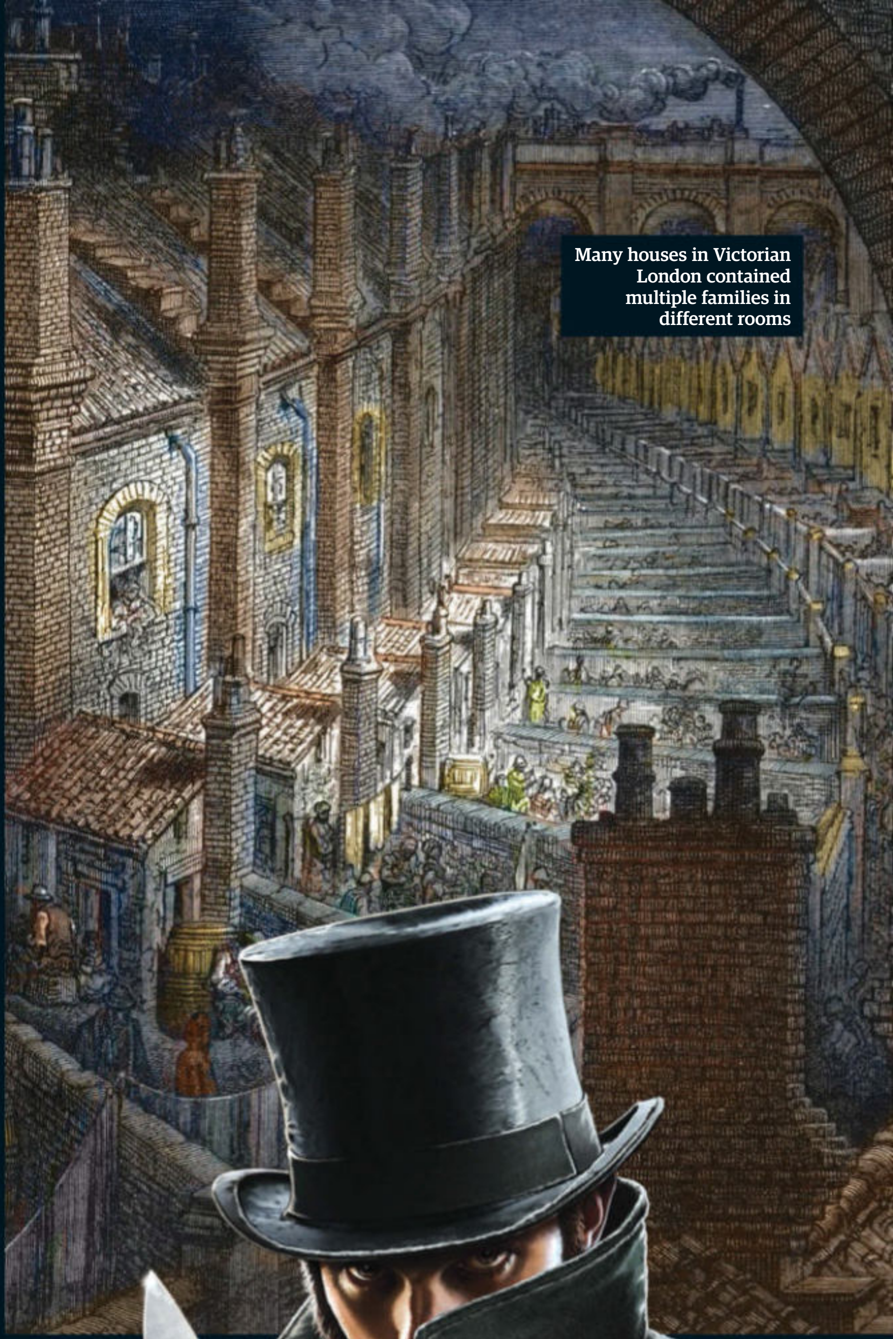
Handcuffs
All policemen were equipped with two pairs of 'D' cuffs, named for the shape that resembled the letter. These handcuffs came in two sizes – one designed for arresting adults, and the other in a child-friendly size for young lawbreakers.

Uniform
Blue was carefully chosen as the colour of police uniforms to deliberately separate the officers from the red-uniformed military enforcers. Male officers would also all wear cork helmets faced with fabric, but while on patrol in a vehicle they would wear flat, peaked caps.

Truncheon
Early truncheons were heavily decorated and seen as proof of identification for the officers. They also featured the monarch's crown and name of the police force. Truncheons were not replaced by identifying warrant cards until the 1890s.



The Metropolitan Police Force was established after a sharp rise in crime in Victorian London



Many houses in Victorian London contained multiple families in different rooms

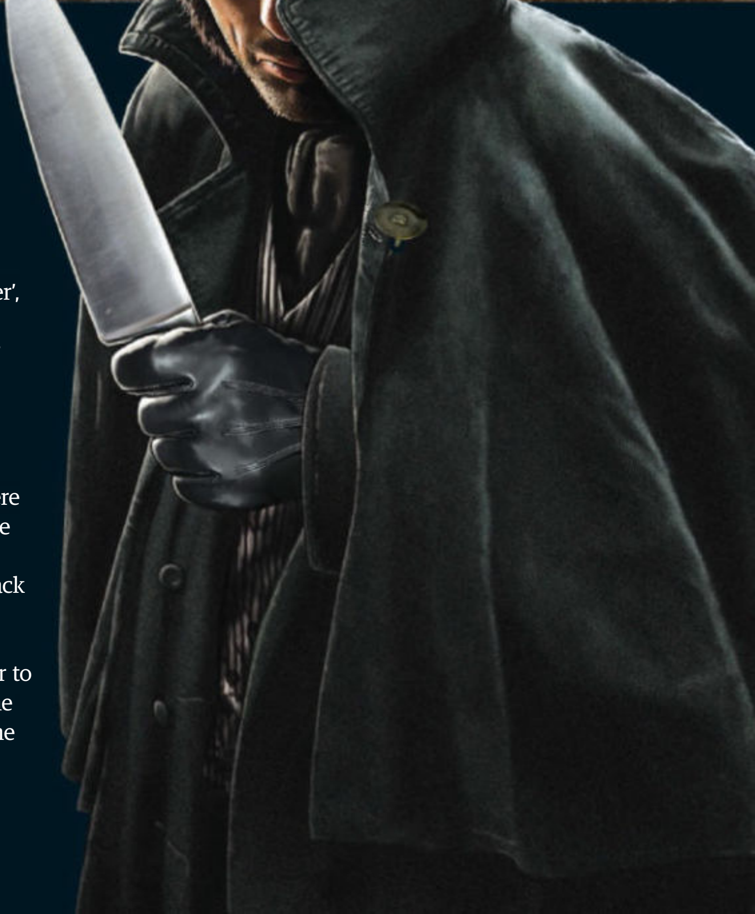
The hunt for Jack the Ripper

Unsolved murders in 19th-Century London were not uncommon. The vast majority of victims were prostitutes, and the bodies of these fallen women were found so often that it's impossible to estimate just how many were murdered. But there was one set of prostitute murders so sinister and horrifying that the mystery surrounding the killer's identity fascinates people to this day.

When the corpse of Mary Ann Nichols was discovered on 31 August 1888, it was butchered so horrifically that it was deemed the work "of a madman." It was treated as yet another prostitute murder until a week later, when a similarly butchered corpse was found. The police soon realised they weren't dealing with a random act of violence, but a serial killer. As the horrors of the murders filled the headlines, the police received a mysterious letter signed by 'Jack the Ripper', and the dark legend was born.

As the murders continued, suspect after suspect was arrested and then released. The Whitechapel murders dominated the newspapers and the police seemed constantly one step behind 'saucy Jacky'. First butchers were accused, then Jews were in the spotlight, next anyone with even the faintest link to a victim became a suspect.

Then suddenly, and without warning, Jack vanished into the shadows. For the next 100 years people continued to attempt to determine his true identity, but the answer to this mystery seems to have been lost in the dark and winding Victorian slums where he claimed his victims.



Leading suspects

The culprit was never caught, but speculation was rife concerning the killer's identity

Prince Albert Victor: 1864-92

Profession: Prince
Why? Driven mad by syphilis, killed to hide illegitimate child. Court documents show his absence when key murders occurred

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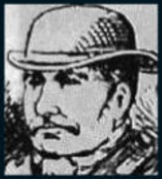

Joseph Barnett: 1858-1927

Profession: Fish porter
Why? Obsessively in love with the victim, prostitute Mary Kelly. Killed others to scare her off the streets and the murders ceased after Kelly's death

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Dr Thomas Neill Cream: 1850-92

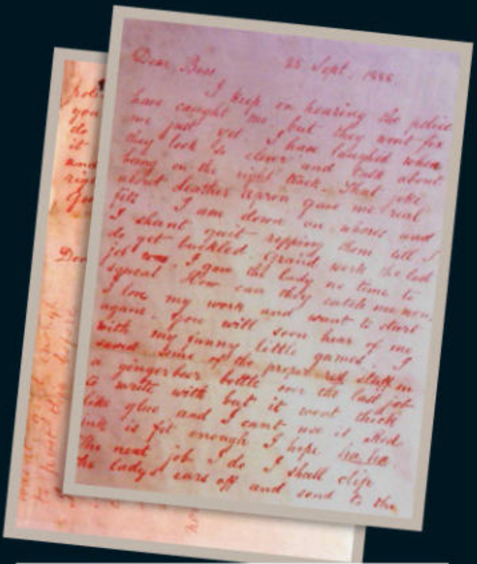
Profession: Abortion doctor
Why? General sadistic tendencies, his supposed last words were "I am Jack the..."

James Kelly: 1860-1929

Profession: Furniture upholsterer
Why? Already murdered his wife and showed a strong dislike for prostitutes. Displayed symptoms of insanity.

Aaron Kosminski: 1865-1919

Profession: None
Why? Insanity, backed up by his stay in Colney Hatch Lunatic Asylum. Identified by a witness, who refused to testify against a fellow Jew.

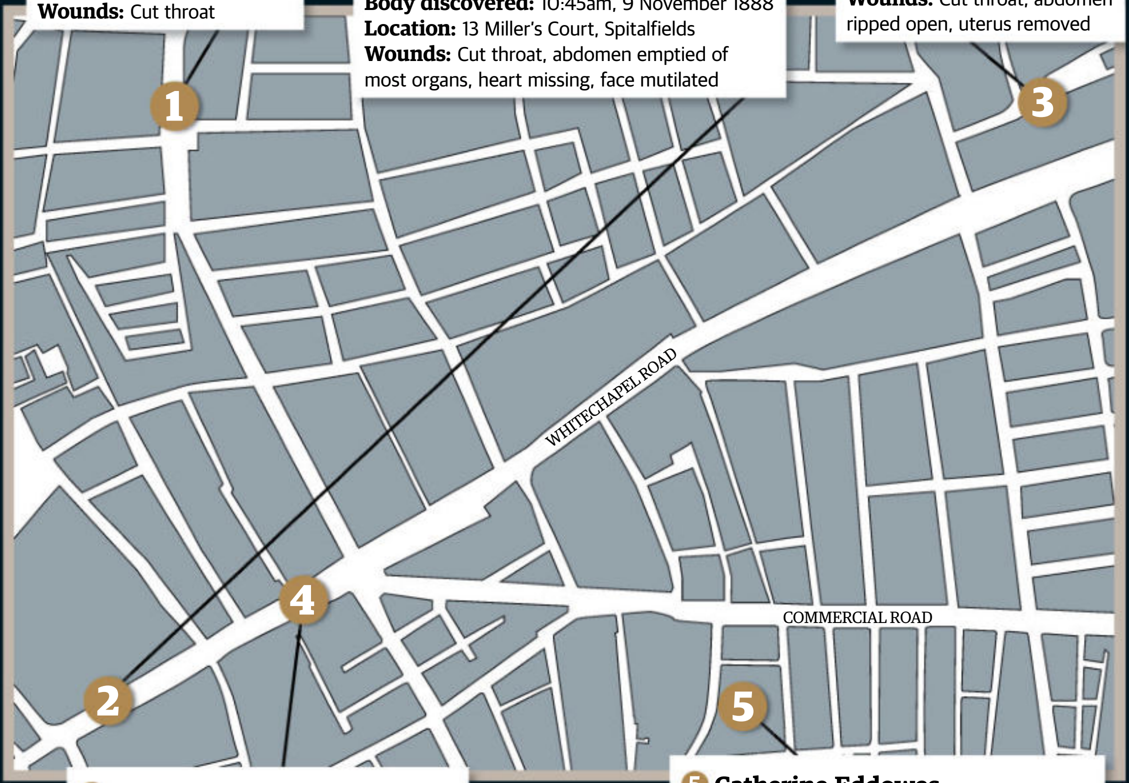


Dear Boss 25 Sept. 1888.
I keep on hearing the police
have caught me but they wont fix
me just yet. I have laughed when
they look so clever and talk about
being on the right track. That joke
about Leather Apron gave me real
fits. I am down on whores and
I shant quit ripping them till I
do get buckled. Grand work the last
job was. I gave the lady no time to
squeal. How can they catch me now.
I love my work and want to start
again. You will soon hear of me
with my funny little games. I
saved some of the proper red stuff in
a ginger beer bottle over the last job
to write with but it went thick
like glue and I cant use it. Red
ink is fit enough I hope ha. ha.
The next job I do I shall clip
the ladys ears off and send to the

① **Elizabeth Stride**
Body discovered: 1am, 30 September 1888
Location: Dutfield's Yard, Berner Street
Wounds: Cut throat

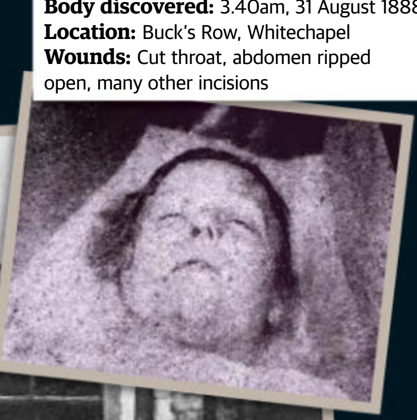
② **Mary Jane Kelly**
Body discovered: 10:45am, 9 November 1888
Location: 13 Miller's Court, Spitalfields
Wounds: Cut throat, abdomen emptied of most organs, heart missing, face mutilated

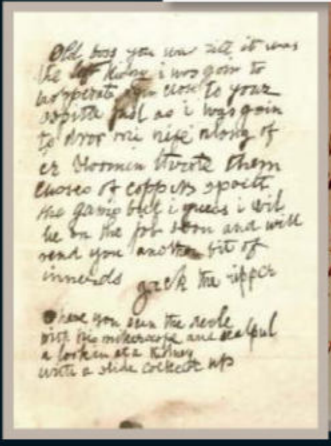
③ **Annie Chapman**
Body discovered: 6am, 8 September 1888
Location: 29 Hanbury Street
Wounds: Cut throat, abdomen ripped open, uterus removed



④ **Mary Ann Nichols**
Body discovered: 3.40am, 31 August 1888
Location: Buck's Row, Whitechapel
Wounds: Cut throat, abdomen ripped open, many other incisions

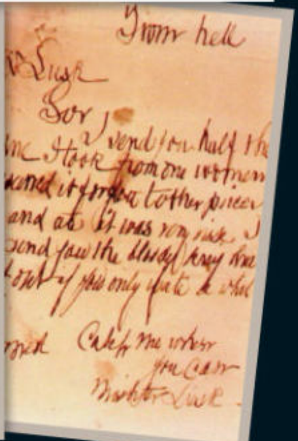
⑤ **Catherine Eddowes**
Body discovered: 1.45am, 30 September 1888
Location: Mitre Square
Wounds: Cut throat, abdomen ripped open, left kidney and most of uterus removed, face mutilated open, many other incisions





Old boss you was rite it was
the left kidny i was goin to
hoperate agin close to your
ospitle just as i was goin
to dror mi nife along of
er bloomin throte them
cusses of coppers spoilt
the game but i guess i wil
be on the job soon and will
send you another bit of
innerds
Jack the ripper

O have you seen the devle
with his mikerscope and scalpul
a lookin at a kidney
with a slide cocked up



From hell
Lusk
Sor
I send you half the
ne I took from one women
ed it for you tother piece
and at it was very nise. I
end you the bloody knif that
t out if you only wate a whil
ed Catch me when
you can
Mishter Lusk

Catching a criminal

The Victorians possessed a steely faith that all crime could be beaten, and the figures published by the Judicial Statistics for England and Wales certainly showed that crimes of all forms seemed to be in the decline. However, up until the 1930s, the Metropolitan Police reported petty thefts as 'lost property' and it is believed that many on the fringes of society, who had little or no faith in law enforcement, simply didn't report offences, perhaps giving a slightly sanitised version of the true level of crime being committed.

In the early years of Victoria's reign, the general consensus was that criminals mainly originated from the lower rungs of the working class. It was an occupation of those who shunned honest labour in the workhouse in favour of idleness and drink. This was the 'dangerous class' that lurked in the depths of their slums waiting for the opportunity to terrorise society's more upstanding citizens.

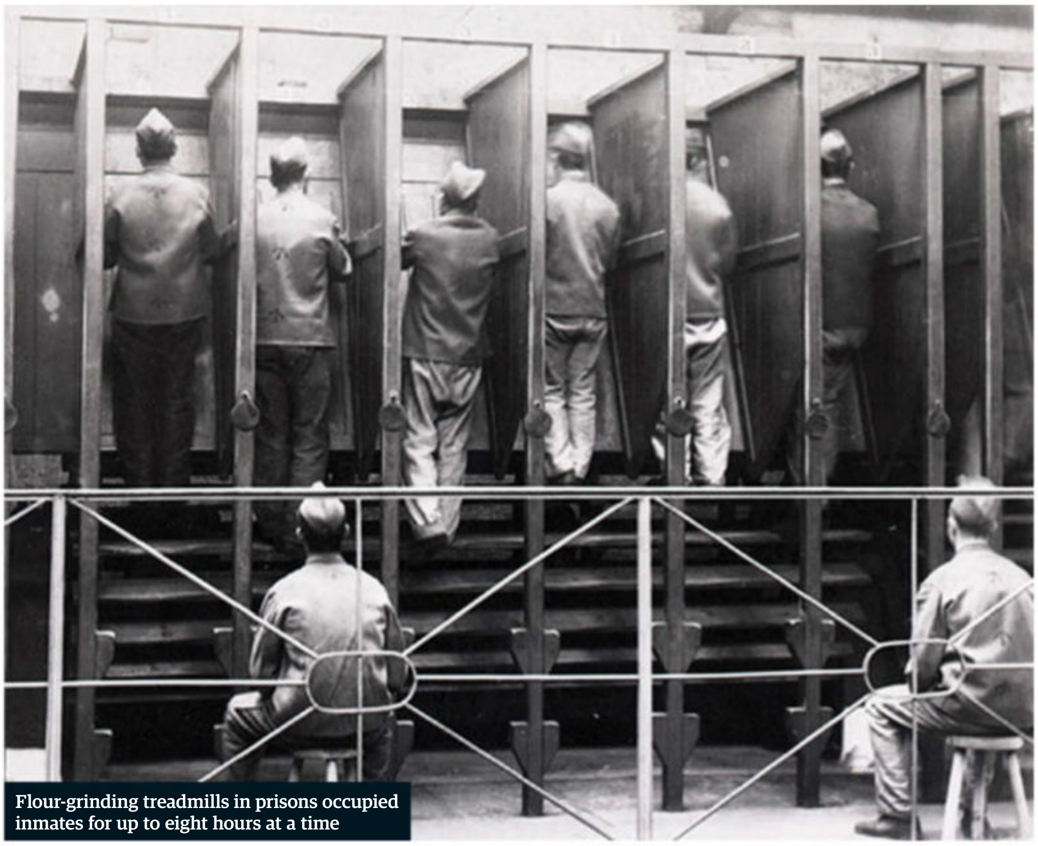
As crime in general was on the decline, when appalling acts were committed, the sensationalist press pounced on them and stirred up an atmosphere of national panic. One such crime to generate this reaction was the phenomenon of 'garrotting', where a victim suffered strangulation at the hands of a mugger. A crime rarely seen, it was hyped up by the papers as a realistic threat. The stories sold newspapers and so much inflamed the national consciousness that a variety of grisly self-defence devices came into use - often carrying more threat to the carrier than the criminal.

When crimes were committed, the perpetrators brought before the courts were, in most cases, male and working class (woman were more frequently found guilty of victimless crimes, such as prostitution and for being drunk and disorderly). However, what's interesting is that the crimes committed by the men who fell under this stereotype were generally petty compared with most white-collar crimes. Yet everyone went along with the image society painted of a criminal class originating from the basement of society.

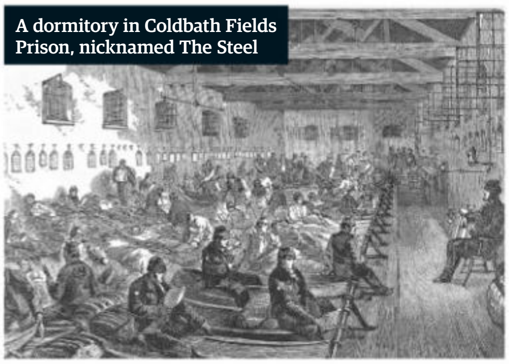
Penal policies for the era fell hard on murderers and the traitors, with capital punishment still in effect. For other crimes, though, the approach was more experimental. Often hard labour and the occasional visit from a chaplain would attempt to reacquaint them with moral virtues and a work ethic. Until the 1850s, undesirables would also be shipped off to penal colonies in Australia, until the colonists of Australia started to object to these unsavoury arrivals..

It wasn't until the end of the 19th Century that doctors and psychiatrists started to psychoanalyse the mentality of criminals. This is where the theory of Social Darwinism was bought into play, declaring that criminals were inflicted with a behavioural abnormality either inherited or nurtured by incompetent parents.

The Victorian era also saw policemen patrolling by foot at night, an exercise that many believed curtailed criminal activity, although to what extent was difficult to measure. But at least it allowed Victorians to sleep easier in their beds at night.



Flour-grinding treadmills in prisons occupied inmates for up to eight hours at a time

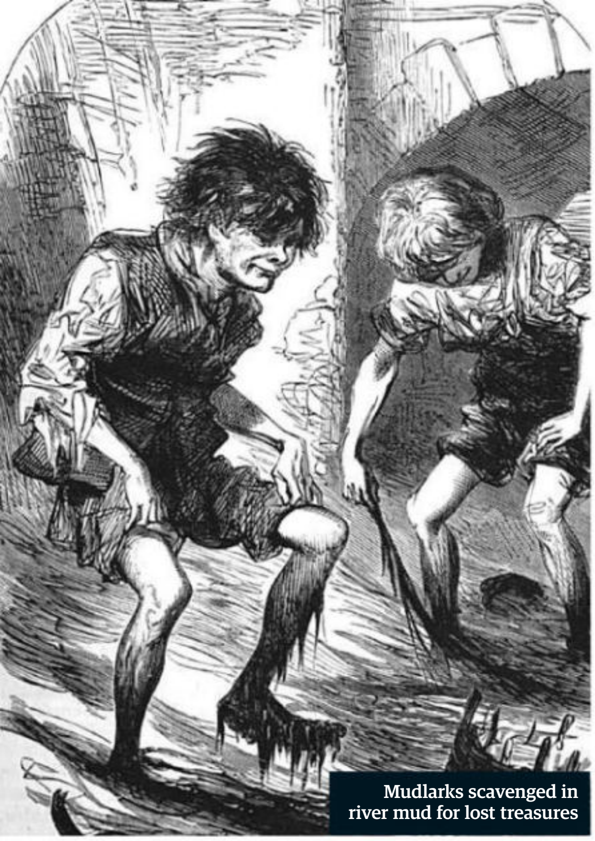


A dormitory in Coldbath Fields Prison, nicknamed The Steel

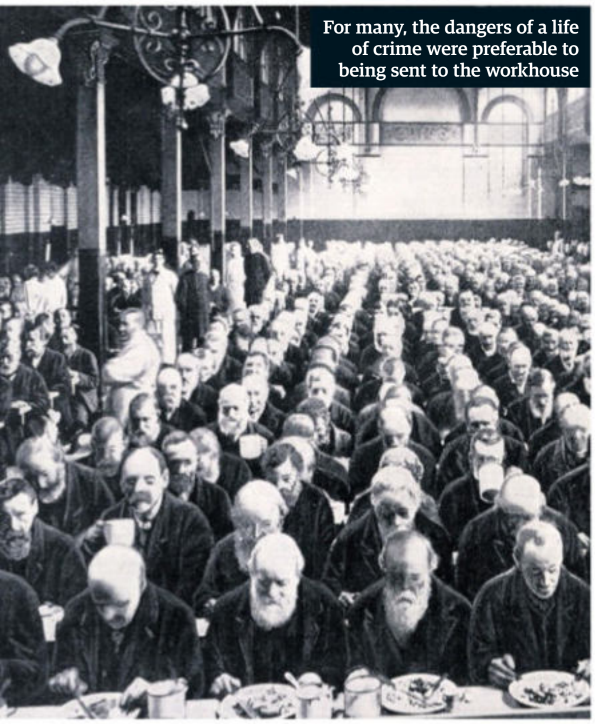
HM Prison Holloway was a mixed prison when opened in 1852

Criminal sentences

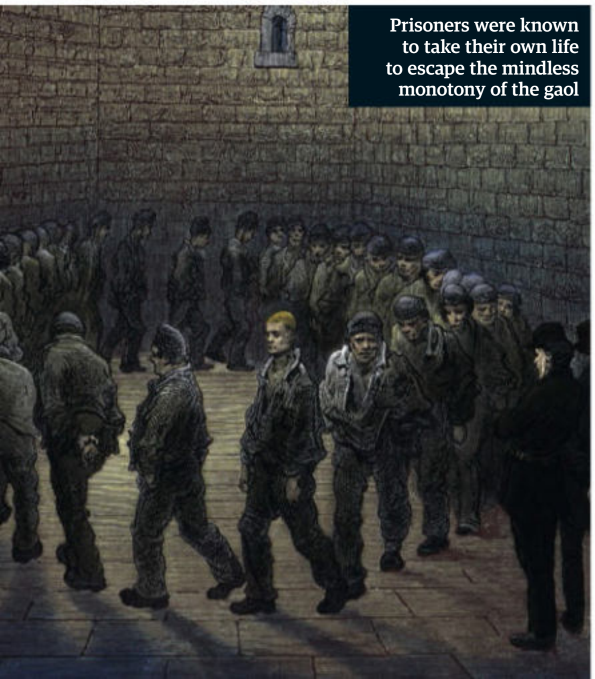
ARSON	15 years' transportation
ABANDONING FAMILY	21 days' hard labour
STEALING ONIONS	Seven years' penal servitude
BEGGING	21 days' hard labour
MURDER	Hanged from the neck until dead
ASSAULT	21 days' imprisonment
TRESPASSING	One month's hard labour/ fined 27 shillings
STEALING A WAISTCOAT	6 months' hard labour



Mudlarks scavenged in river mud for lost treasures



For many, the dangers of a life of crime were preferable to being sent to the workhouse



Prisoners were known to take their own life to escape the mindless monotony of the gaol

Victoria's Most Wanted

The most deadly and dastardly criminals of the Victorian underworld

AMELIA DYER

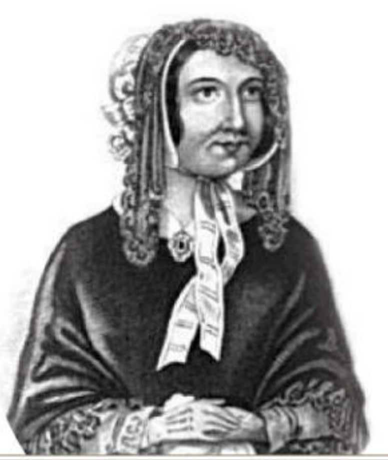
1837-96

NICKNAMES: Ogress of Reading, The Reading Baby Farmer
CRIME: After training as a nurse for many years, Dyer opened her home to young pregnant women who had conceived out of wedlock. When the babies were born she promised the mothers she would provide a safe and loving home for a one-off payment. However, instead of providing homes, Dyer killed the children and pocketed the profits. Although she aroused suspicion, she was able to avoid detection thanks to various conveniently timed stays in mental hospitals. When her crimes were finally discovered, Dyer had been responsible for 200-400+ child deaths.
PUNISHMENT: Hanged from the neck until dead
LAST WORDS: "I have nothing to say."

CHARLES PEACE

1832-79

NICKNAME: The Banner Cross Killer
CRIME: Beginning with small robberies, the ironically named Peace was in and out of jail throughout his life. In 1876, he killed a police officer while robbing a house. Peace later became obsessed with a woman called Katherine Dyson. One night her husband caught him stalking her and Peace shot him dead. Peace was eventually arrested, despite attempting to escape by throwing himself from a train window.
PUNISHMENT: Hanged from the neck until dead
LAST WORDS: "Sir, if I believed what you and the church say that you believe, even if England were covered with broken glass from coast to coast, I would walk over it […] and think it worth while living, just to save one soul from an eternal hell like that!"



MARIA MANNING

1821-49

NICKNAME: Bermondsey Horror
CRIME: Maria Manning was a Swiss domestic servant fascinated with the trappings of wealth, so decided she would marry a rich man to become a lady. She set her sights on Patrick O'Connor. However, she ended up marrying Frederick Manning, a poor railway guard who promised he was set to inherit a fortune. This was a lie, so Maria continued her affair with O'Connor, which Manning encouraged. The couple invited him over for dinner one evening after digging a grave under the kitchen floor. When he arrived, she shot him. The wound was not fatal, so Manning battered him to death with a chisel.
PUNISHMENT: Hanged from the neck until dead
LAST WORDS: None reported

WILLIAM PALMER

1824-56

NICKNAMES: The Rugeley Poisoner, The Prince of Poisoners
CRIME: Palmer was involved in crime from an early age, facing allegations of stealing. He later became a doctor, but death seemed to follow Palmer – within weeks of his marriage to Anne Thornton, her wealthy mother was dead, and even four of his own children died mysteriously. In debt, Palmer took out life insurance on his wife and brother and they both died soon after. The murder of John Cook finally exposed Palmer. Cook was poisoned by Palmer, who then interfered with the post mortem. Despite this, poisoning by strychnine was ruled as the cause of death and Palmer found guilty. It is believed he killed 14 people.
PUNISHMENT: Hanged from the neck until dead
LAST WORDS: "Cook did not die from strychnine."

Inside the workhouse

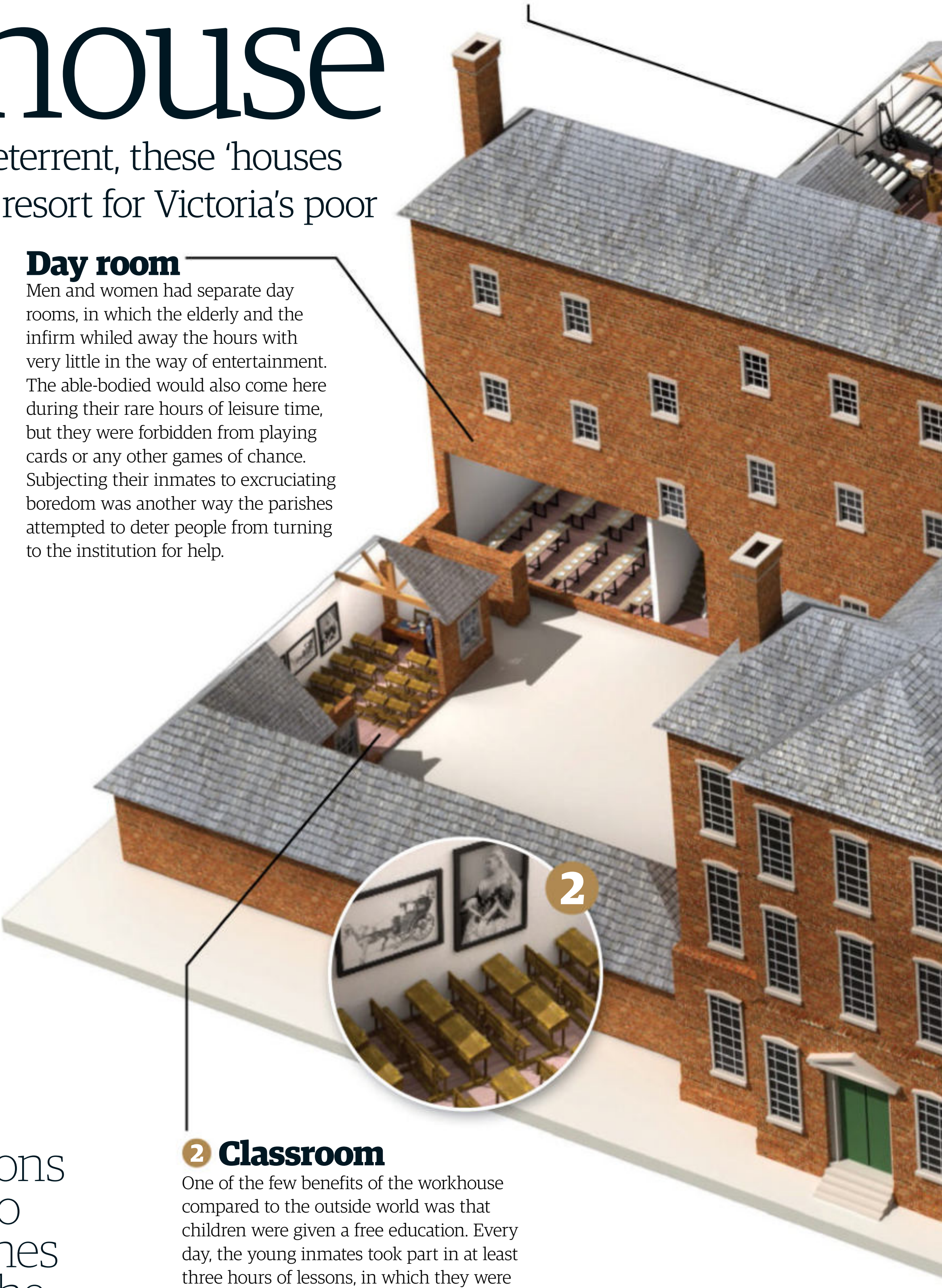
Part punishment, part deterrent, these 'houses of correction' were a last resort for Victoria's poor

The image of the pauper toiling away in the workhouse has come to symbolise the grim underworld of Victorian Britain, but it has a far longer history. In 1601, a law was passed that made the parishes responsible for looking after their poor, and support was given in the form of money collected from taxes, clothing and food. However, in 1834 the Poor Law Amendment Act was passed, which aimed to end payouts to those who were able to work.

All the parishes in England and Wales set up their own workhouses - places where the poor, elderly and infirm could live and work. But these were not nice places to be. The inmates were given arduous tasks, which they were required to perform for hours on end, like breaking stones or picking apart old ropes. They were fed tasteless food like gruel and porridge, they slept in packed dormitories, and they could only bathe once a week under supervision. But what many people considered the worst part of workhouse life was that families were split up. Men, women, boys and girls were segregated into different areas, and were only allowed to see each other for an hour or so on a Sunday. By making conditions in the workhouse so atrocious, the parishes ensured only the truly needy applied.

But it wasn't all doom and gloom. Unlike the outside world, workhouses provided free education and healthcare to their inmates. They set the stage for a new era of state-funded welfare, and when the NHS was founded in 1948, many former workhouses were transformed into hospitals.

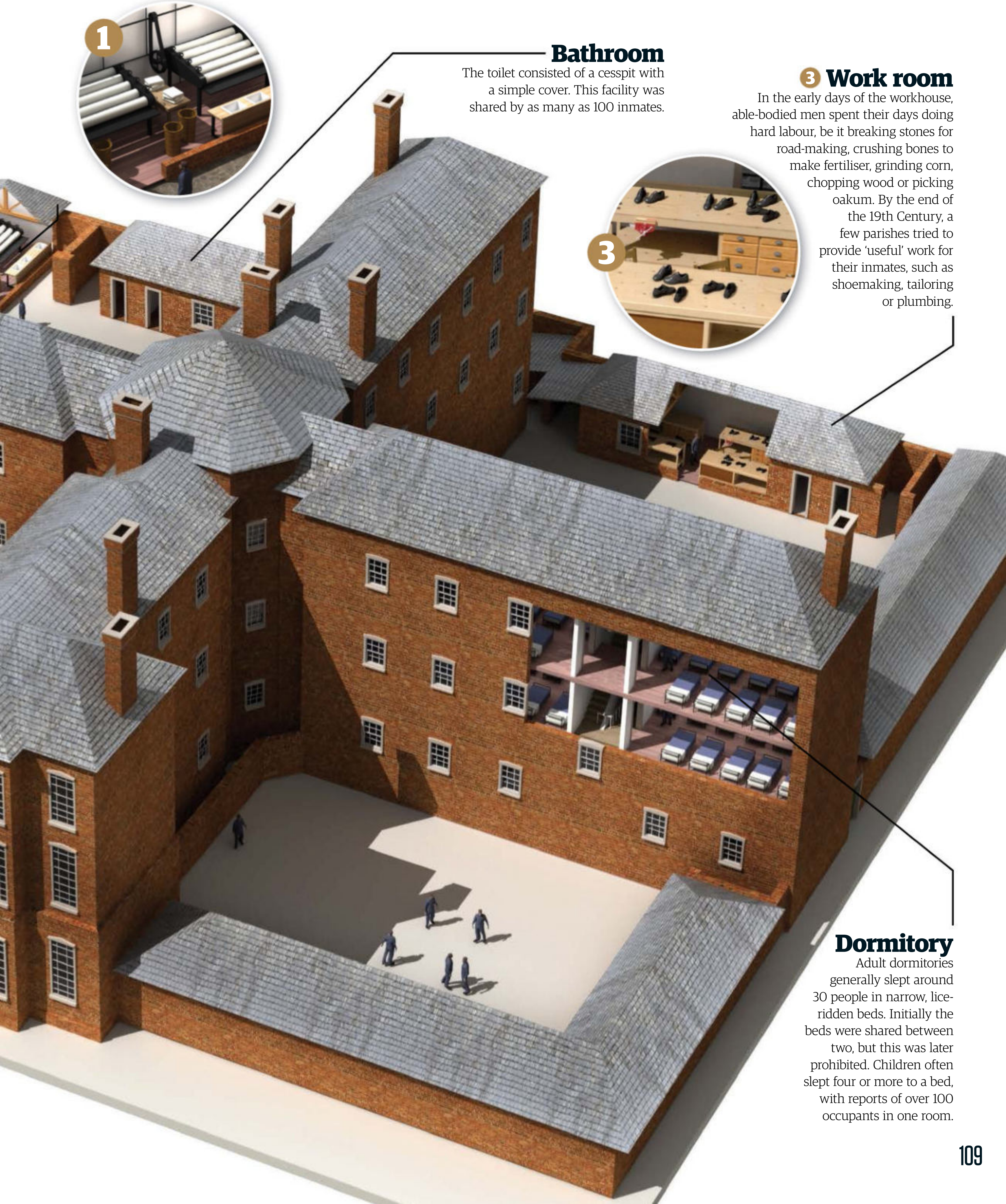
> "By making conditions in the workhouse so atrocious, the parishes ensured that only the truly needy applied"



① Laundry
Female inmates mostly did domestic jobs like cleaning, gardening or helping in the kitchen or laundry room. Some workhouses had workshops for sewing, spinning and weaving in order to help local industry.

Day room
Men and women had separate day rooms, in which the elderly and the infirm whiled away the hours with very little in the way of entertainment. The able-bodied would also come here during their rare hours of leisure time, but they were forbidden from playing cards or any other games of chance. Subjecting their inmates to excruciating boredom was another way the parishes attempted to deter people from turning to the institution for help.

② Classroom
One of the few benefits of the workhouse compared to the outside world was that children were given a free education. Every day, the young inmates took part in at least three hours of lessons, in which they were taught reading, writing, arithmetic and other lessons that would 'train them to habits of usefulness, industry and virtue'.



Bathroom

The toilet consisted of a cesspit with a simple cover. This facility was shared by as many as 100 inmates.

③ Work room

In the early days of the workhouse, able-bodied men spent their days doing hard labour, be it breaking stones for road-making, crushing bones to make fertiliser, grinding corn, chopping wood or picking oakum. By the end of the 19th Century, a few parishes tried to provide 'useful' work for their inmates, such as shoemaking, tailoring or plumbing.

Dormitory

Adult dormitories generally slept around 30 people in narrow, lice-ridden beds. Initially the beds were shared between two, but this was later prohibited. Children often slept four or more to a bed, with reports of over 100 occupants in one room.

The rise of the middle class

Wealth and social status had previously hinged on inheritance, but with industry came a new social mobility seized by the 'middling sort'

The class system of Victorian England was as rigid as a lady's corset. Every man, woman and child knew their place, and it would dictate their daily life – even trains were divided up into classes with first, second and third carriages. Whether you could afford the most expensive ticket was beside the point; in the this era, money couldn't buy you class. You could be an underpaid clerk of an Ebenezer Scrooge, earning less than a skilled labourer, but you would still be considered middle class, while a multitude of labourers populated the working class. It was background that mattered, and if you were fortunate enough to be born into the highest echelons of society, you could look forward to a life of fine food, luxury living and a daily routine catered for by the lower class.

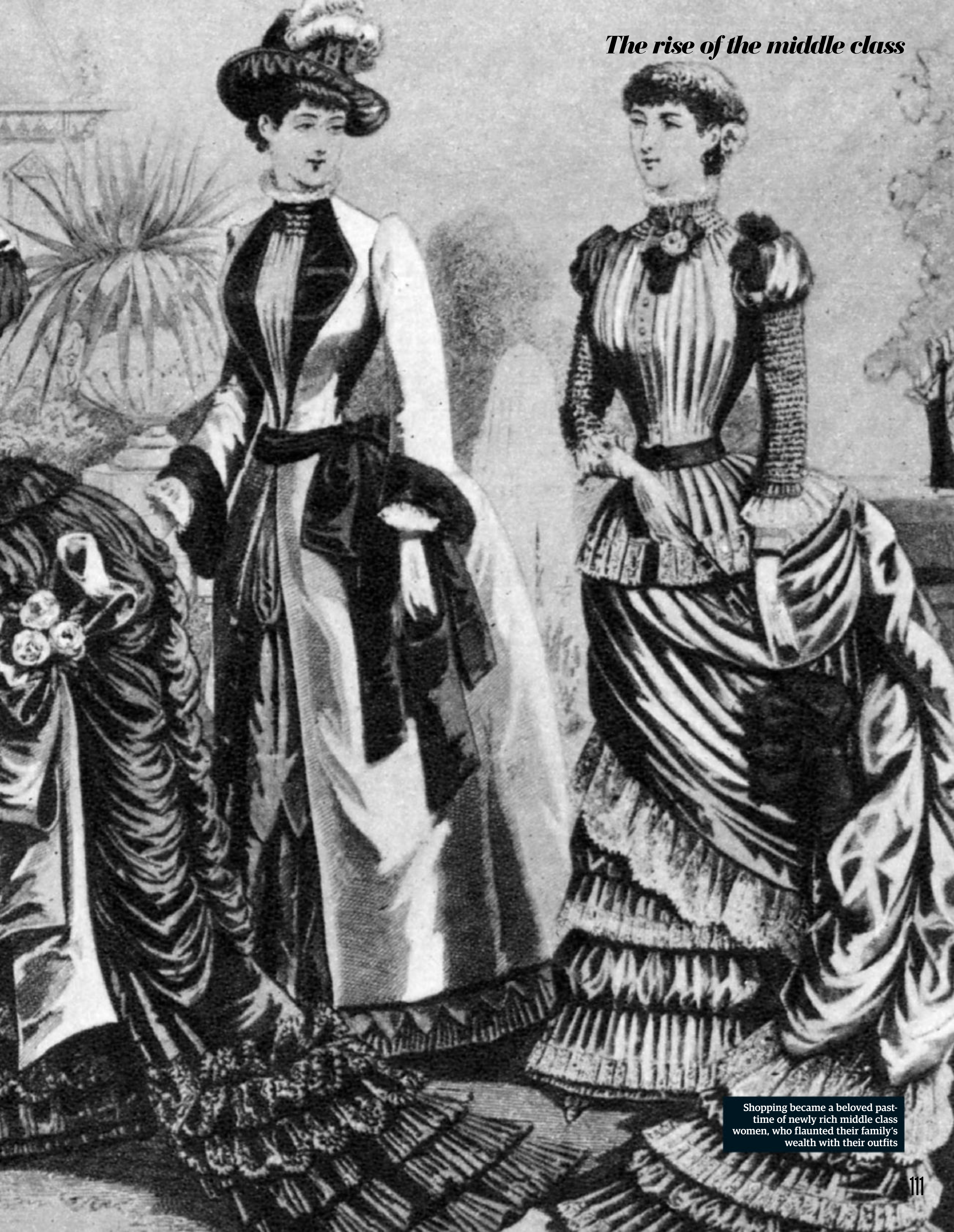
Even before m'lord and m'lady awoke, a staff of servants would be scurrying about under their floorboards, preparing breakfast, opening the shutters in the family sitting rooms and re-laying the fires. A long day devoted to cleaning and serving had begun and it wouldn't end until around midnight, when the butler would signal that the family had gone to bed. The number of servants employed depended on the size of the home and the scale of the masters' riches, and most middle-class households aspired to have at least one or two servants to keep them comfortable.

Indeed, the upper class did not work but relied upon their investments or inherited land for their income. Some owned thousands of acres and this would be divided into farms that were rented out on long-term leases. Wealthy families would reside on grand estates whose hallways had been trampled by their ancestors for generations. These homes were the lifeblood of their families and the master would bequeath it, along with any attached titles, to their eldest son and heir.

A gentleman might sit in Parliament or get involved in local affairs – but never partake in paid work – while daughters were destined to marry, bear children and raise them in a respectful manner. There was no greater example than Queen Victoria – herself a doting wife and mother. It was her duty to ensure the household was a happy one, and to conduct herself with all the poise and grace that was expected of a lady.

Much of this boiled down to etiquette – a series of expectations and principles that women had to follow. This could be as trivial as wearing the correct jewellery with the right outfit, or how to eat fruit elegantly. Ladies were educated from a young age and it further separated them from the lower

> Growing industries led to new professions opening up. Small-time entrepreneurs and admin roles became commonplace



Shopping became a beloved pastime of newly rich middle class women, who flaunted their family's wealth with their outfits

> "Family, self-reliance and responsibility were virtues of the Victorian middle class, who despised aristocratic idleness"

classes, who weren't concerned with etiquette. Forbidden from working, the upper-class woman kept herself busy with visits, formal dances and dinners where she would socialise with women of similar standing.

It was a wealthy man's world and the Industrial Revolution had offered the opportunity for the rich to get richer. Factories and inventions such as the steam engine and the sewing machine ensured that goods could be produced faster and in large quantities. Meanwhile, ships and railways facilitated overseas trading with the expanding Empire, increasing access to goods from all over the world. Producers of major industries, such as cotton, coal, iron and steel, and engineering, profited immensely, welcoming a type of social mobility that had never been seen before.

Thousands of new jobs were created with the growth of new businesses and the middle class swelled with opportunity. Its members represented a broad spectrum of economic statuses and vocations, from farmers and retail merchants, to bankers and manufacturers. They were seen as the driving force behind the expansion of the British economy, with rising wages, low inflation and a doubling of gross national product.

Writing shortly after the end of the Victorian era, author RH Gretton notes how difficult it is to define the middle classes. "The very name 'middle class' suggests a stratum of society which, though obviously in existence, and calling for a descriptive label, was so lacking in marked characteristics or qualities that it could only be described as lying between two other classes." He went on to say that the term is synonymous with 'transitional', implying that one section of the middle class merged with upper class and the other with the lower class.

The wealthiest among them were branded 'nouveau riche' – a label imported from France and used to describe the newly rich of industrial England in a sneering, judgmental way. People with inherited capital saw these upstarts as lacking the values of Old Money and thought their spending habits were vulgar and classless. Revelling in their newfound fortune, members of the upper-middle class began to move to the more expensive suburbs and purpose-built, working-class houses were packed into the city. The rich-poor divide was widening and, for the first time, money and land began to merge. It was a time of great change and tension.

The nouveau riche would have previously belonged to a lower social class but money had allowed upward social mobility. They sent their sons to elite schools like Eton and hoped their daughters might marry landowners so their social standing would rise with the next generation. Family, self-reliance and responsibility were virtues of the Victorian middle class, who despised aristocratic idleness. They valued hard work and didn't need Charles Darwin to tell them that competition was the key to survival.

BY APPOINTMENT
JAYS

Staffing of a wealthy household

Upper-class life in Victorian England couldn't function without a workforce of loyal, hard-working servants

1. Butler

The butler was in charge of running the house and was the highest ranking official servant. Therefore, he was able to roam upstairs and downstairs and needed to be trustworthy and incredibly discreet, devoting their entire lives to their master and their master's family.

2. Housekeeper

The housekeeper was responsible for all the female staff and saw that all the work was carried out to the highest possible standard. She was constantly on the lookout for any wrongdoing on the part of the servants and fed back to the lady of the house.

3. The cook

The cook worked under the housekeeper, but the kitchen was her main territory. She would make sure it was clean, tidy and well-stocked and, most importantly, oversaw the meals and kitchen staff, which included kitchen maids and the scullery maid.

4. Lady's maid

Acting as a private servant to the lady of the household, she would help her mistress with dressing, taking care of her clothing, bringing her breakfast and drawing her a bath. She would become the lady's companion and took precedence in the servants' hall.

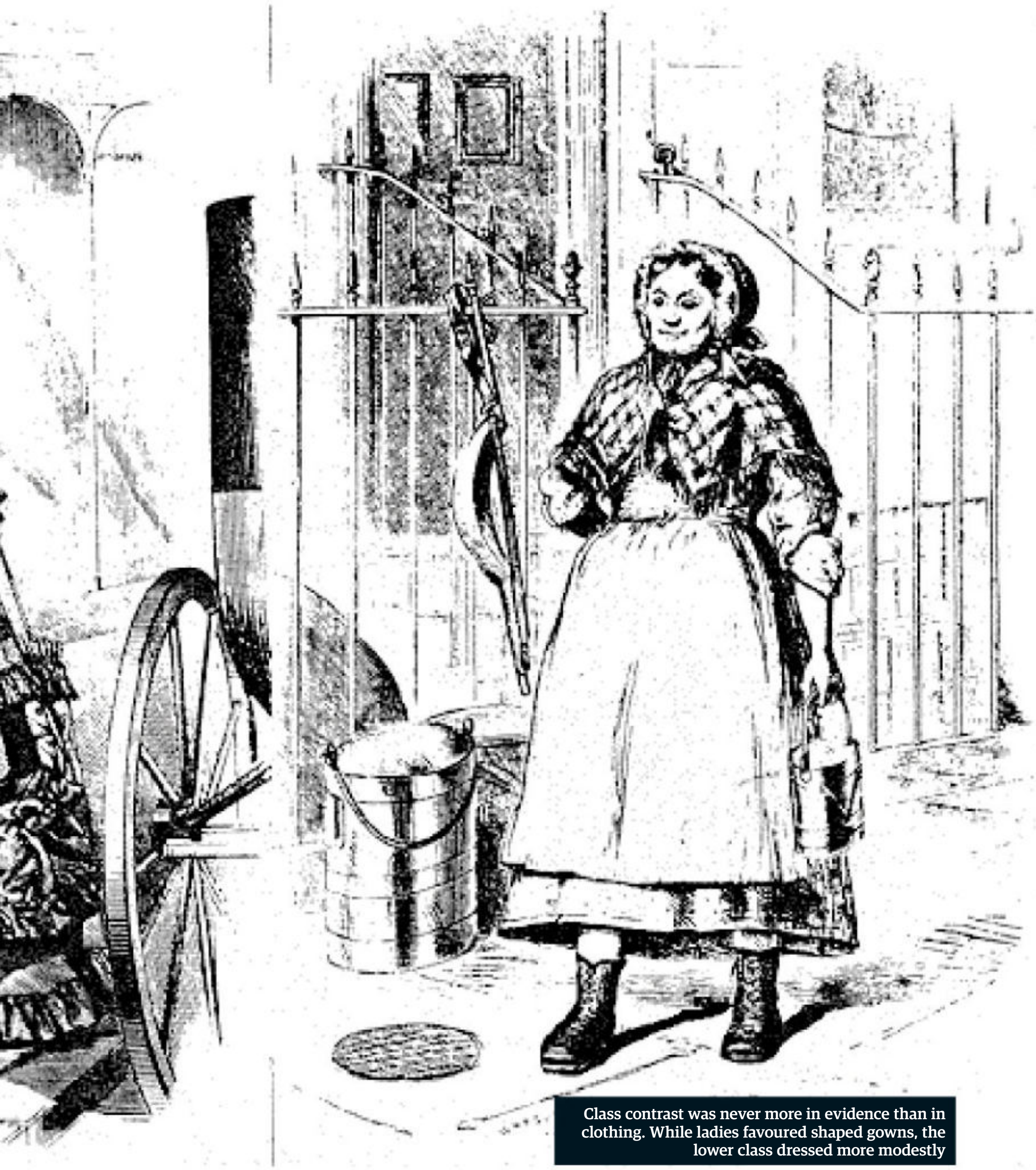
5. First footman

Tall and good-looking, a footman was as much for show as he was a practical part of the army of servants. He was usually young and unmarried, and he would serve as a deputy butler. The first footman would polish the silver, open and close doors, and serve meals.

6. Nurse

The nurse or nanny would take care of the children of her employer, assisted by a nursery maid who may have only been 12 or 14 years of age. Duties would include tidying the nursery and ferrying meals, laundry and hot water from the kitchen to the nursery.

Staff in stately homes used hidden passages throughout the home to keep out of their masters' eyes



Class contrast was never more in evidence than in clothing. While ladies favoured shaped gowns, the lower class dressed more modestly

Published on the same day as Darwin's *The Origin Of Species*, was the very first self-help book, which spoke volumes about the attitudes of the time. Written by Samuel Smiles, it promised the secret to success and flew off the shelves, selling over a quarter of a million copies. "Heaven helps those who help themselves," he wrote, documenting the stories of men who had climbed the social ladder. An ideal metaphor for this process was a beehive, as bees symbolised hard graft and an acceptance of social order. It was assumed that this attitude was the key to progress and therefore the lower class were somehow deserving of the fate that befell them – even the squalor and hardship of the workhouse.

Those who did succeed often found themselves mixing with upper-class ladies and gentlemen with no idea how to behave. Authors started making money from this common predicament, publishing instructional guides with titles like *The Habits Of Good Society* and *How To Behave And How To Amuse*. They held the answers to such social quandaries as how to pass an acquaintance in the street (hint: always offer them the side next to the houses) and how to refer to your husband or wife in public (always as Mr or Mrs). The repercussions of referring to someone by the wrong title, wearing the incorrect fashion at a certain time of day or for a young woman to be unchaperoned, for instance, could exile the unfortunate individual from the social scene entirely. Etiquette governed the days of the upper class and if the upper-middle class was to be accepted in their circles, they had to act accordingly.

Aside from manners, the middle class flaunted their growing financial wealth by acquiring

Ladies who lunch

The original afternoon tea trendsetter was Anna Maria (1783-1857), the Duchess of Bedford and one of Queen Victoria's ladies-in-waiting. At the time, people would have only two main meals a day: breakfast, and dinner at 8pm in the evening. The Duchess was famished during the late afternoon, so one day, she asked her servants to serve a pot of tea and a light lunch in her boudoir. Her new ritual became a trend that travelled fast among the upper crust of society.

Afternoon tea

Tea

Tea will be served in silver tea pots and poured into fine china cups. Milk always goes in after tea; remember the saying? "To put milk in your tea before sugar is to cross the path of love, perhaps never to marry." One can never be too careful.

A selection of freshly prepared finger sandwiches

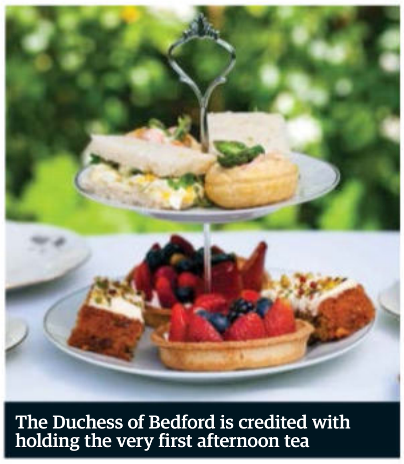
The tea tray may look inviting, but one must show some self-restraint. Eat savouries first, scones next and sweets last. Try the dainty cucumber sandwiches; they are crustless, of course, and should be eaten with three fingers – but never put your little finger in the air.

Warm scones with clotted cream and preserves

Split the scone with a knife and spoon a small amount of jam and clotted cream onto your plate. Add this to the scone, but never use the serving spoon for this task, or suffer the disapproving scowls from the other guests.

A variety of homemade cakes and pastries

Care for a treacle tart or a slice of Battenberg? It's polite to try a little of everything that is offered, but always take small bites; this is a social occasion and it would be rude not to participate in the conversation.



The Duchess of Bedford is credited with holding the very first afternoon tea status symbols, what has been called the 'paraphernalia of gentility'. Publications such as the *Englishwoman's Domestic Magazine* featured all the latest décor and must-haves, from silks to pianos. It was the age of invention and overseas trading, and these goods found their way into wealthy households, fostering a new form of consumer culture. As Charles Dickens wrote in *Dombey And Son*: "Just round the corner stood the rich East India House, teeming with suggestions of precious stuffs and stones, tigers, elephants…" Indeed, Britain's growing interests in India resulted in luxurious imports like spices, sugar and tea. The latter sparked a culture in Britain that has remained until this day.

Fashion was a more explicit way of revealing one's wealth, and middle-class women were quick to latch onto the luxurious styles of the upper class. Generally this meant distorting the figure as much as possible, with waist-cinching corsets and bottom-boosting bustles. Movement was heavily restricted, implying that they had plentiful servants to carry out their chores, while the working class wore far more modest and practical apparel. After her husband departed for the city and the nursery maid took the children under her wing, the well-to-do housewife took a carriage into town to see what the stores had on offer for her to add to her rapidly-expanding wardrobe.

Middle-class women were known to change their outfits several times a day as shopping became a popular pastime. With the opening of the Great Exhibition in 1851 – the first international exhibition of manufactured products – the culture

Social hierarchy

The class system was the bedrock of society when the Industrial Revolution ushered in a new type of social mobility…

Upper class

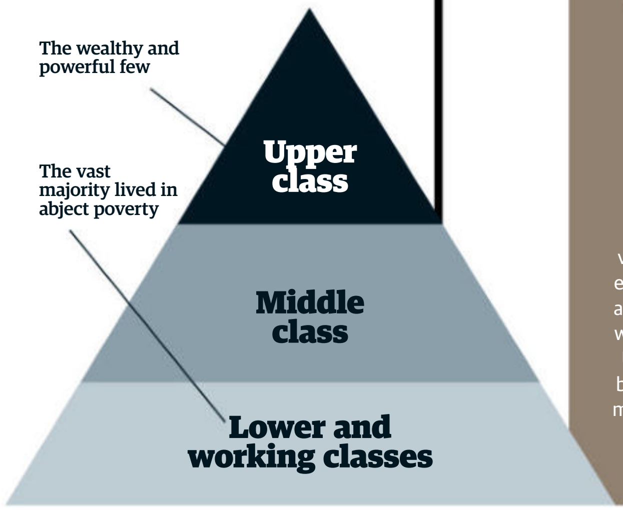
This could be divided into three tiers: the royal class, middle upper class and the lower upper class. Members of the royal family and spiritual lords would be at the top, followed by baronets and temporal lords, then wealthy country gentlemen who owned acres of land. Later, this would also come to include businessmen who had made a fortune during the Industrial Revolution. An incredible 40 per cent of the country's wealth was owned by just five per cent of the population.

Middle class

The middle class made up about 15 per cent of the population and was split into upper-middle class and lower middle class. People in this strata of society had one thing in common: they all took home a salary. The upper-middle class included Church of England clergymen, military and naval officers and high-status law and medicine professionals. Later, engineers and businessmen would join their ranks, as they grew in wealth and social standing. The lower middle class, on the other hand, was comprised of shopkeepers and 'white collar' workers that included middle managers and bookkeepers.

Lower class

The majority of people in Victorian England were in poverty, which is why a pyramid is an apt shape for describing social order as well as the numbers that occupied each tier. This last rung would consist of skilled labourers such as blacksmiths and textile mill workers, and unskilled labourers including rat catchers and London street peddlars. At the very bottom of society, you'd find the poor who depended of charity to survive.


The wealthy and powerful few
The vast majority lived in abject poverty
Upper class
Middle class
Lower and working classes

Famous faces

Well-known names from the era range from a writer to the first middle-class prime minister

Robert Louis Stevenson

1850 - 1894

The celebrated author penned such classics as *The Strange Case Of Doctor Jekyll and Mister Hyde*. He was the son of respectable upper-middle class parents; a sickly child, he spent his days indoors, reading about travel and adventure, which no doubt inspired later novels such as *Treasure Island*.

Florence Nightingale

1820 - 1910

As an upper class woman, Florence Nightingale was expected to become a wife and mother, but she refused. While searching for a different path, she became determined to learn how to nurse. She fulfilled her ambition and went to the Crimean War to nurse wounded soldiers and save many lives.

Alfred, Lord Tennyson

1809 - 1892

Born to an upper-middle class vicar, he received a good literary education and wrote poetry from a young age, becoming published while still a student at Cambridge University, England. In 1850, he became the poet laureate, which meant he was tasked with writing important poems about events that affected the nation.

William Morris

1834 - 1896

The famous textile designer and poet was influenced by medievalism while studying Classics at Oxford University, England. He is best-known for his wallpaper designs, which have never been out of production since his first wallpaper in 1864. His patterns reflected nature, which was especially popular.

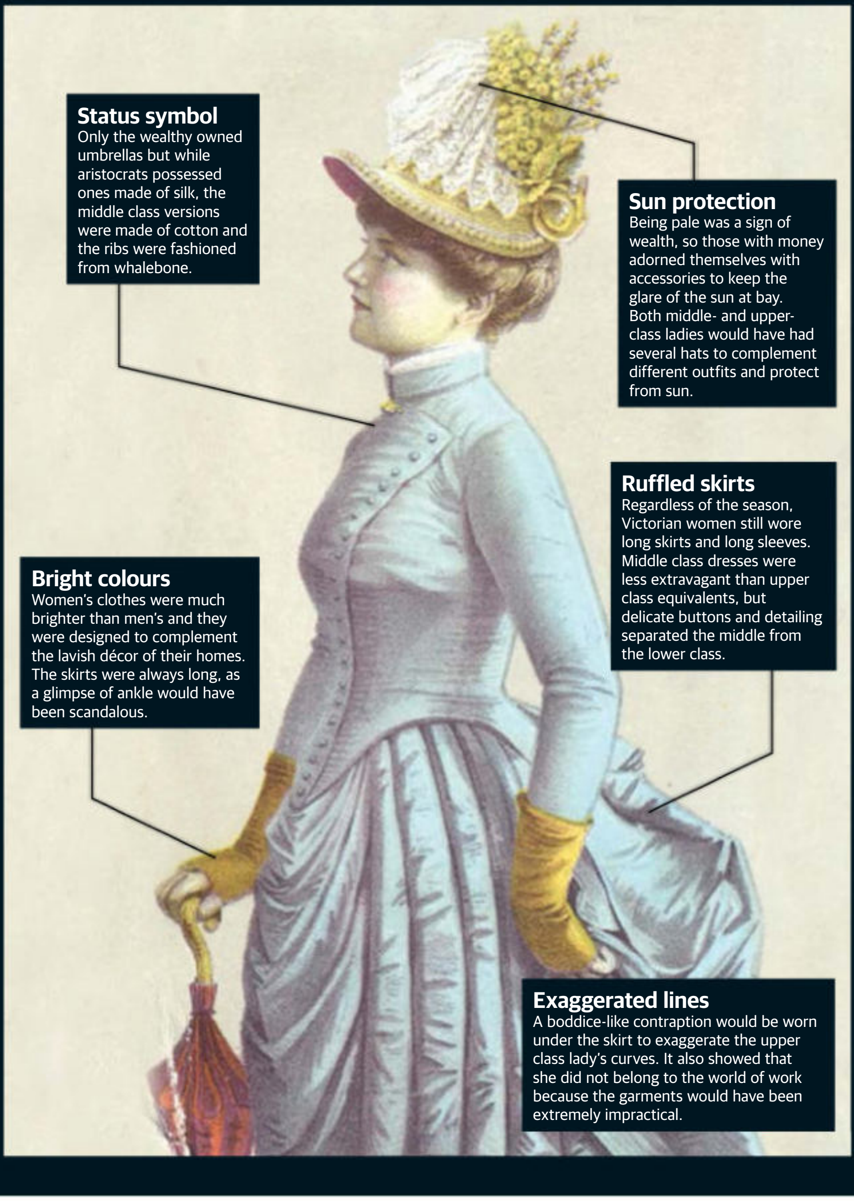
Sir Robert Peel

1788 - 1850

Sir Robert Peel – the first middle class British prime minister – was seen as a traitor to both his middle class roots and his adopted upper class. He would publicly declare that he was the son of a cotton spinner, which didn't reconcile with the manor house he'd built himself in Staffordshire.

Dressed for success

Flaunting wealth rather than taste, upper- and middle-class ladies said a lot with their fashion choices



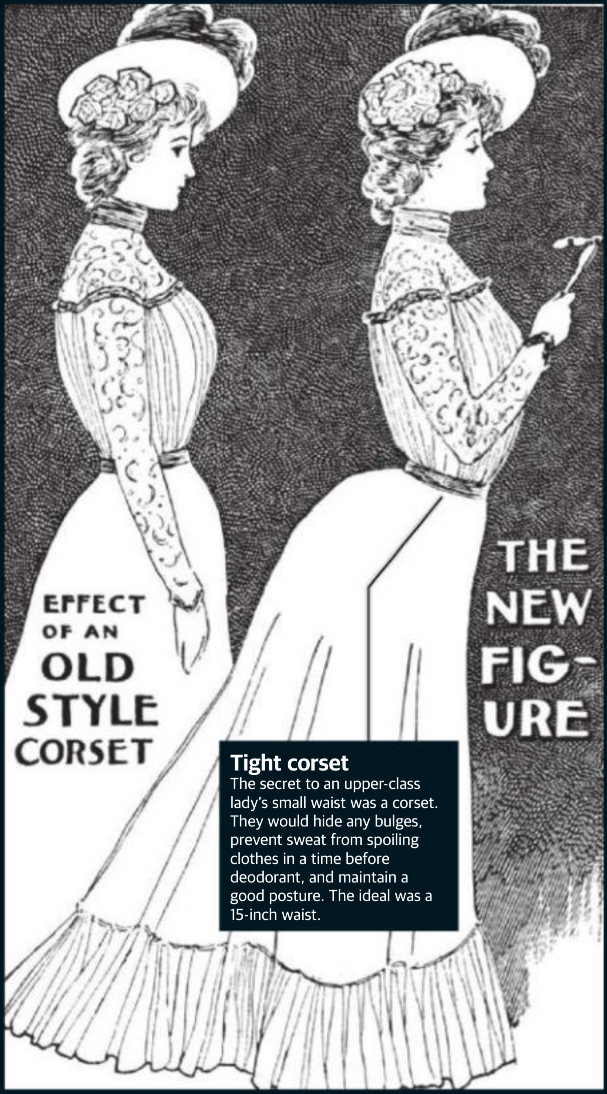
Status symbol
Only the wealthy owned umbrellas but while aristocrats possessed ones made of silk, the middle class versions were made of cotton and the ribs were fashioned from whalebone.

Sun protection
Being pale was a sign of wealth, so those with money adorned themselves with accessories to keep the glare of the sun at bay. Both middle- and upper-class ladies would have had several hats to complement different outfits and protect from sun.

Ruffled skirts
Regardless of the season, Victorian women still wore long skirts and long sleeves. Middle class dresses were less extravagant than upper class equivalents, but delicate buttons and detailing separated the middle from the lower class.

Bright colours
Women's clothes were much brighter than men's and they were designed to complement the lavish décor of their homes. The skirts were always long, as a glimpse of ankle would have been scandalous.

Exaggerated lines
A boddice-like contraption would be worn under the skirt to exaggerate the upper class lady's curves. It also showed that she did not belong to the world of work because the garments would have been extremely impractical.



Tight corset
The secret to an upper-class lady's small waist was a corset. They would hide any bulges, prevent sweat from spoiling clothes in a time before deodorant, and maintain a good posture. The ideal was a 15-inch waist.

The old corset is contrasted with the new S-bend style silhouette

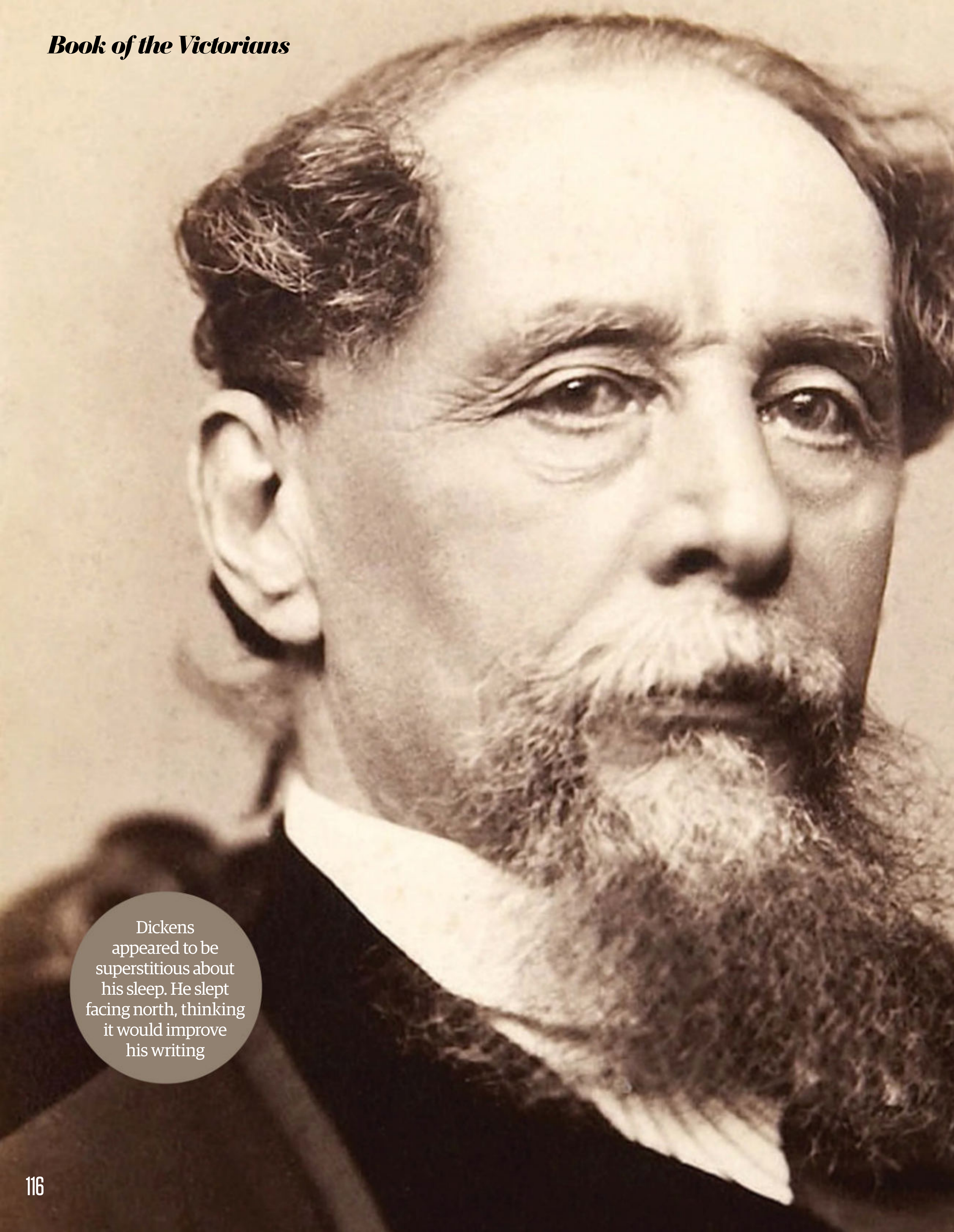
> "Fashion was a more explicit way of revealing one's wealth… Women were quick to latch onto the luxurious styles"

of 'window shopping' was born. It was held in the Crystal Palace, which featured 300,000 panes of glass – a recent invention – and people would come to admire the many wonders this industrial age had produced. Department stores developed, with expensive window displays and gas-lighting designed to attract the newly affluent middle class. The experience of shopping became as important as the quality of the items on display, and the middle class were known to devote as much time to spending money as they did earning it. The standard of living improved no end and families would enjoy holidays at the seaside – made possible by the expanding network of steam railways – while the husband would visit from London on the weekend 'husband boat'.

As the middle-class' economic power grew, so did their desire to be heard. They were under-represented in Parliament so, to protect their industrial interests, they launched a campaign to give them a voice in government. With the 1832 Reform Act, they gained the political power they needed to maintain their new position. Controversial and hugely significant, the Act reapportioned representation in Parliament to the cities of the industrial north of England and granted the right to vote for any man owning a household worth £10 in yearly rent. This ensured the interests of the growing middle class and property owners were better represented.

Later, the lower class would be admitted to the electoral process with skilled urban workers gaining the vote in 1876 and rural workers in 1884. These reforms paved the way for the open society we live in today, where anyone can become middle class based on merit, not birth.

Although the Victorian class system has since crumbled and Great Britain underwent a period of tremendous change, the middle-class work ethic still lives on.



Dickens appeared to be superstitious about his sleep. He slept facing north, thinking it would improve his writing

Charles Dickens

Author, social commentator, celebrity, playwright, philanthropist – Charles Dickens had more strings to his bow than many people might realise

He named some of his children after literary figures, such as Alfred Tennyson, Henry Fielding and Edward Bulwer-Lytton

Oliver Twist. Nicholas Nickleby. Great Expectations. David Copperfield. A Christmas Carol. These names are all immediately familiar for the impact they have had – and continue to have – on literature and popular culture. They also go some way towards evaluating the life of Charles Dickens himself. Not only does his name live on due to the enduring nature of his fiction; the social commentary contained within his writing provides one of the most illuminating perceptions of the Victorian age, an era that ultimately defined much of how we live today.

Born on 7 February 1812 in Portsmouth, Charles' early years were relatively comfortable. His father, John, worked as a clerk for the Navy Pay Office, which afforded his family a relatively comfortable lifestyle. However, it wasn't to last. Over the course of a few years, John managed to run up substantial debts, culminating in him being remanded in the Marshalsea debtors' prison in Southwark in 1824. As the oldest son, Charles was forced to drop out of school and work in a warehouse, pasting labels onto pots. The cramped and uncomfortable conditions had a lasting impact on the young Charles, who smarted at the injustice of his situation. He left a few months later, after his father's situation was resolved, but he never forgot this period of his life, with the dire circumstances faced by London's poor becoming a recurring theme in his fictional works.

After completing his studies, Dickens briefly worked as a junior clerk for a law firm (during which he made a strong impression with his lively character and vast knowledge of London, all of which would later be manifested in his work), before turning his hand to freelance journalism in a law court. Again, he drew on these experiences in later years, with the likes of *Bleak House* revealing the distaste he had developed for the inefficiencies of bureaucracy.

Around this time, the first saga in what would prove to be a rather chequered love life occurred, when he was rejected as a suitor for a young banker's daughter called Maria Beadnell by her family on account of his then-deemed unsatisfactory future prospects.

However, his luck was about to change. After a short-lived foray into theatre acting, he turned to writing, a career field in which he would enjoy infinitely more success. After contributing a number of short stories and essays to various publications (written under the moniker Boz, a family nickname), in April 1836 the first chapter of what would later be known as *The Pickwick Papers* was published. It was a success, and greatly boosted Dickens' fledgling reputation. In addition to writing *The Pickwick Papers*, he became editor of the monthly *Bentley's Miscellany* magazine, during which time he also wrote a number of plays.

The serial format – in which stories were published a few chapters at a time in newspapers or magazines, rather than all at once in a single volume – was embraced by Dickens. In subsequent years, he published a number of his novels in this way: *Oliver Twist* (1837-39) *Nicholas Nickleby* (1838-39), *The Old Curiosity Shop* (1840-41) and *Barnaby Rudge* (1841) all contributed to his burgeoning celebrity status. It was remarked in the October 1837 issue of the *Quarterly Review*, "The popularity of this writer is one of the most remarkable literary phenomena of recent times." The biggest development of this period, however, was his marriage to Catherine Hogarth, the daughter of a fellow editor, with whom he would go on to have ten children.

Capitalising on his fame, he embarked on a tour of the United States in 1842. His initially warm reception turned hostile, however, after he spoke at a number of lectures protesting against copyright laws (in response to the pirating of his and others' work in US newspapers, culminating in his taking a signed petition to Congress). He responded in kind, saying, "I have never in my life been so shocked and disgusted… by the treatment I have received here." His experiences were chronicled in his essay collection *American Notes*, as well as influencing the subject matter of his next novel, *Martin Chuzzlewit*. Neither of these received the same level of acclaim as his previous works, although his reputation swiftly recovered in the wake of his novella, *A Christmas Carol*, in 1843. A very different proposition to his more social commentary-imbued previous works, its success nonetheless demonstrated his versatility. He would continue to venture outside his more traditional output, writing more Christmas stories as well as the cautionary fable *A Tale Of Two Cities*.

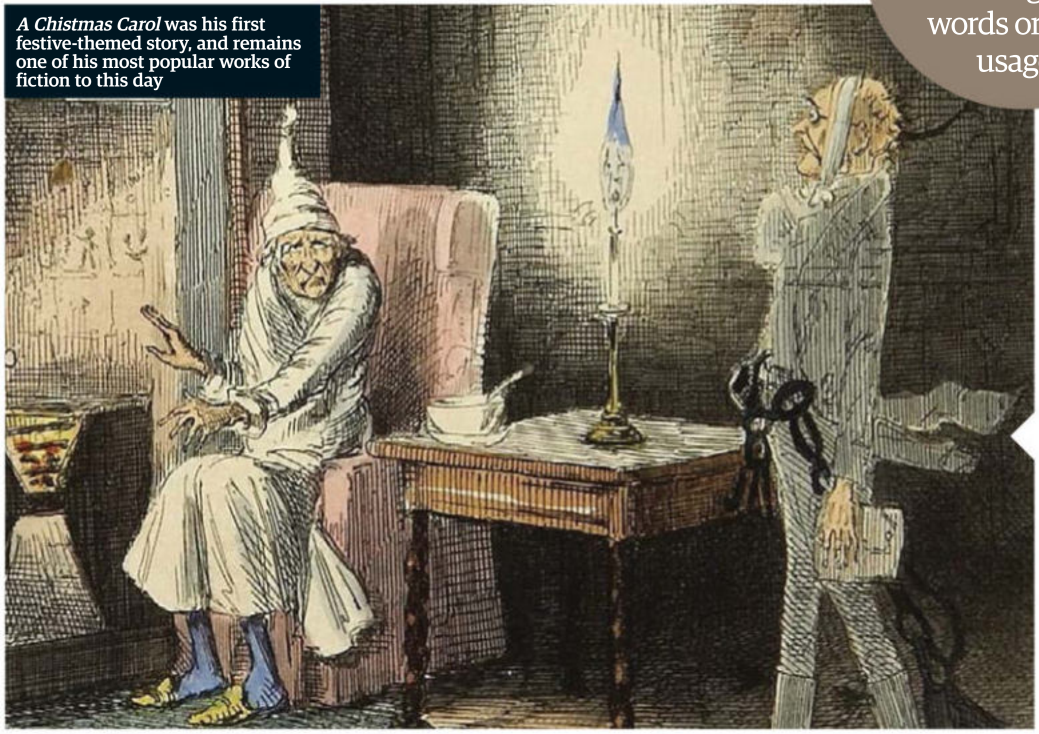
It was during this time that Dickens' writing took more of a backseat role to his other ventures. He spent time living in Italy and Switzerland, and even delved into philanthropy, establishing Urania Cottage in Shepherds Bush, a home for fallen women, in 1846. Even so, he continued to write, with *Dombey And Son* (1848) and *David Copperfield* (1850 - about which he said, "Of all my books, I like this the best"), both being released during this time.

After moving to Tavistock House in London with his family, Dickens' fictional output continued to accumulate, with the likes of *Bleak House* (1853), *Hard Times* (1854) and *Little Dorritt* (1857) all seeing the light of the day. By this point, having also become joint owner/editor of the weekly journal *Household Words*, he had accumulated enough wealth to purchase Gad's Hill Place near Rochester in Kent – a house he had always dreamed of owning. Further adding to his already extensive roll call of responsibilities, he delved into amateur theatrics, the ramifications of which would have a great impact on his life.

While working on his play *The Frozen Deep* in 1857, he fell in love with the lead actress, Ellen Ternan (known as Nelly). Aged just 18, she was 27 years his junior and their affair lasted 13 years – he and Catherine separated in 1858. Dickens' surviving letters from the time made no mention of the relationship with Ellen, and it wasn't until after his death that details of their affair started to become public knowledge.

Subsequently, his writing continued to play second fiddle to his other pursuits, predominant among which was a series of speaking tours in aid of charity that he embarked on from 1858 onwards. Informed by his love of the theatre, he was able to combine this with his written works, performing some of the more dramatic scenes from his works (most notably the murder of Nancy by Bill Sikes from *Oliver Twist*). In all, he put on 471 performances, encompassing tours through

> The Oxford English Dictionary credits Dickens with introducing 247 new words or word usages



A Chistmas Carol was his first festive-themed story, and remains one of his most popular works of fiction to this day

Defining moment

A Christmas Carol published

19 December 1843

While Dickens is predominantly known for publishing novels in serial form, *A Christmas Carol* marks one of his first forays into the novella format. As it turns out, it is met with critical acclaim, and will prove to be the first (and by far the most successful) of a number of Dickens-penned Christmas stories. Much of the influence for the story comes from Dickens' memories of his father, with the good/bad sides of the miserly Ebeneezer Scrooge characterising his similarly conflicting memories of his father, as well as his own experiences of the conditions suffered by the poor of Britain.

Timeline

1812

Charles Dickens born

Charles John Huffam Dickens is born at 1 Mile End Terrace in Landport, Portsmouth, the second son of John and Elizabeth Dickens. His birthplace is now known as 393 Commercial Road.
7 February 1812

1824

Father arrested

John is remanded to Marshalsea debtors' prison. His wife and youngest children move in with him, while Charles lodges with a family friend, being forced to leave school to work in a warehouse.
20 February 1824

1827

Leaves school

After his father's release, he attends Wellington House Academy in Camden Town, where he stays for two years. He speaks critically of it, claiming it as the inspiration for Mr Creakle's boarding school in *David Copperfield*.
March 1827

1836

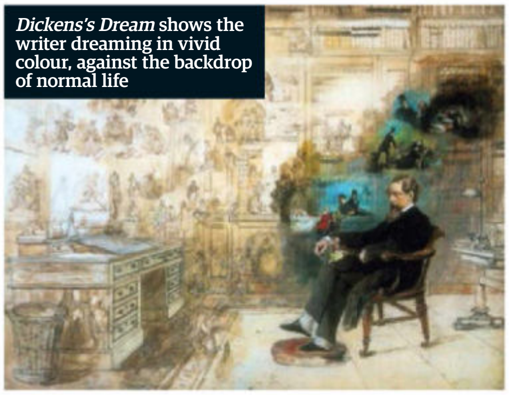
Writes The Pickwick Papers

The first two chapters of what will become his first novel, *The Pickwick Papers*, are released. It is an instant success that catapults Dickens into critical acclaim and celebrity.
April 1836

1836

Marries Catherine

After a year-long engagement, Dickens marries Catherine Thomson Hogarth, the daughter of a fellow newspaper editor, George Hogarth. They go on to have ten children together.
2 April 1836

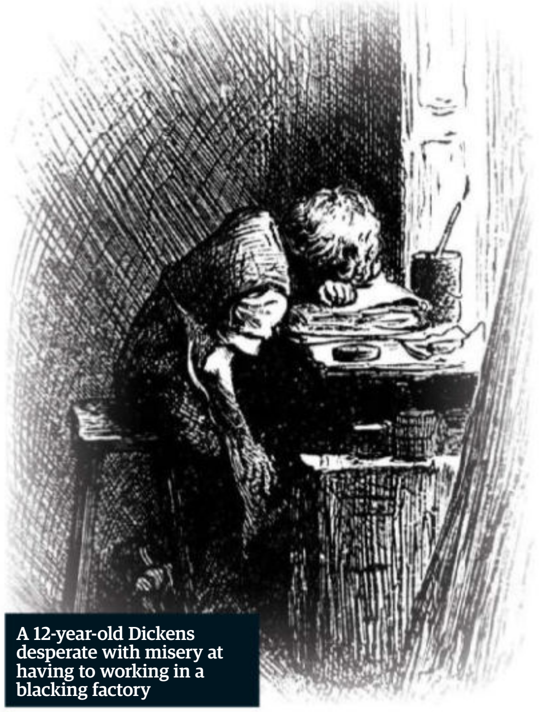


Dickens's Dream shows the writer dreaming in vivid colour, against the backdrop of normal life

London and the United States (a tour of Australia was planned, but ultimately abandoned). Although his written output was much reduced during this period, he still found time to pen *A Tale Of Two Cities* (1859), *Great Expectations* (1861) and *Our Mutual Friend* (1865).

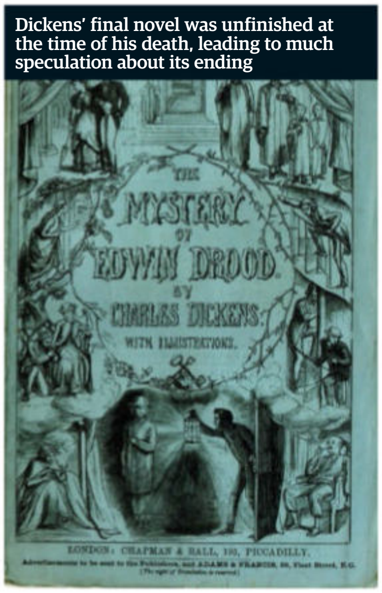
As it turned out, the last of the aforementioned three proved to be his final complete novel. His health already weak after the strenuous US tour he'd undertaken, his condition continued to worsen, culminating in him collapsing while speaking in Preston in April 1869. With the rest of his tour cancelled, he commenced work on *The Mystery Of Edwin Drood* (inspired in part by his visits to opium dens during the 1860s) – a novel that would remain unfinished – and performed a number of replacement readings from January-March 1870, his last public appearance taking place in May at the Royal Academy Banquet, with the Prince and Princess of Wales in attendance.

On 8 June 1870, he suffered a stroke at his home, from which he never regained consciousness, dying the next day at the age of 58. He was buried in Westminster Abbey in Poets' Corner – alongside the likes of Geoffrey Chaucer and William Shakespeare.



A 12-year-old Dickens desperate with misery at having to working in a blacking factory

Today, his legacy lives on. His works have never gone out of print, and have been repeatedly adapted for the stage, cinema and television. His face adorns £10 notes; he continually lives on in popular culture, coming 41st in the BBC's 2002 poll of the 100 Greatest Britons; and five of his books (*Great Expectations*, *David Copperfield*, *A Christmas Carol*, *A Tale Of Two Cities* and *Bleak House*) were included in the top 100 of the 2003 'Big Read' poll. Nearly 150 years on from his death, Charles Dickens' memory continues to endure.



THE MYSTERY OF EDWIN DROOD
BY
CHARLES DICKENS
WITH ILLUSTRATIONS.
LONDON: CHAPMAN & HALL, 193, PICCADILLY.

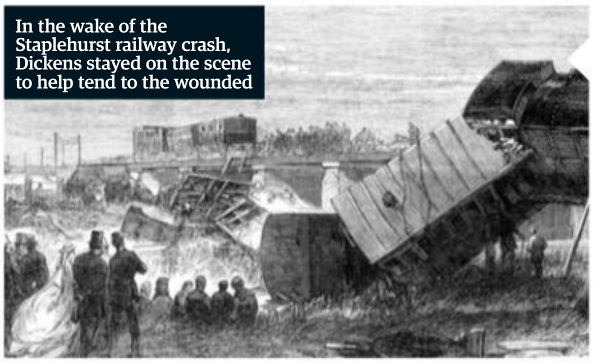
Dickens' final novel was unfinished at the time of his death, leading to much speculation about its ending

The Mystery Of Edwin Drood

Out of all Dickens' novels, it is arguably his unfinished tome that attracts the most speculation and has the most mystique attached to it. Scheduled to be released in 12 parts, only six were completed by the time of his death (between April and September 1870), leaving the true ending unknown. Reaction to the released volumes had been positive, with 50,000 copies being sold. Dickens himself declared, "It has very, very far outstripped every one of its predecessors."

Taking place in a setting rather similar to that of Rochester, Kent (unlike the vast majority of his novels, which are set in London), it tells the story of the opium-addicted John Jasper, the uncle of the eponymous Edwin Drood, who falls madly in love with Rosa Bud, Drood's fiancée. The last released volume sees the disappearance of Drood, with the final outcome left unresolved.

Dickens' friend and biographer John Forster later claimed that the author had revealed to him in a letter that Jasper had in fact murdered Drood – a claim backed up by Dickens' son, Charles. Various writers have since completed unofficial continuations of the story, but like many a good mystery, this looks like something we'll never see a definite resolution to.



In the wake of the Staplehurst railway crash, Dickens stayed on the scene to help tend to the wounded

Defining moment

Staplehurst railway disaster

9 June 1865

While returning from a trip to Paris with Ellen Ternan, his train comes off the rails on a viaduct over the River Beult in Kent. Ten people are killed and 40 injured – Dickens and Ternan are unharmed, since their carriage stays on the track. After climbing out of a window, Dickens remains on the scene to tend to the injured, armed with a flask of brandy and his hat, which he uses to carry water – returning to the carriage only to retrieve the unfinished manuscript of Our Mutual Friend. He even personally takes one injured man by carriage to Charing Cross hospital.

1856

Buys Gad's Hill Place

Having long admired it as a child (partly because of its presence in Shakespeare's *Henry IV*), Dickens eventually purchases the house in Higham, Kent, for use as a country home.

March 1856

1857

Has affair with Ellen Ternan

While working on a play, he meets and falls in love with actress Ellen Ternan, and promptly separates from Catherine. Since the two both destroyed their letters to each other, the exact nature of their relationship is unknown.

1857

1858

Starts reading tours

In addition to his writing, Dickens embarks on tours throughout Britain and the US, reading out excerpts from his work. It allows him to utilise his love for theatrics, and the tours are well received.

1858

1865

Writes Our Mutual Friend

His final complete novel, *Our Mutual Friend* is one of his most complex stories, featuring a large cast of characters and a plot with multiple strands.

1865

1870

Dies

After suffering from a stroke the day before, he passes away in his home at Gad's Hill. He is subsequently buried in Poets' Corner at Westminster Abbey.

9 June 1870

EMPIRE-BUILDING

Discover how imperial ambitions were realised, leading to an empire encompassing a quarter of the world's surface

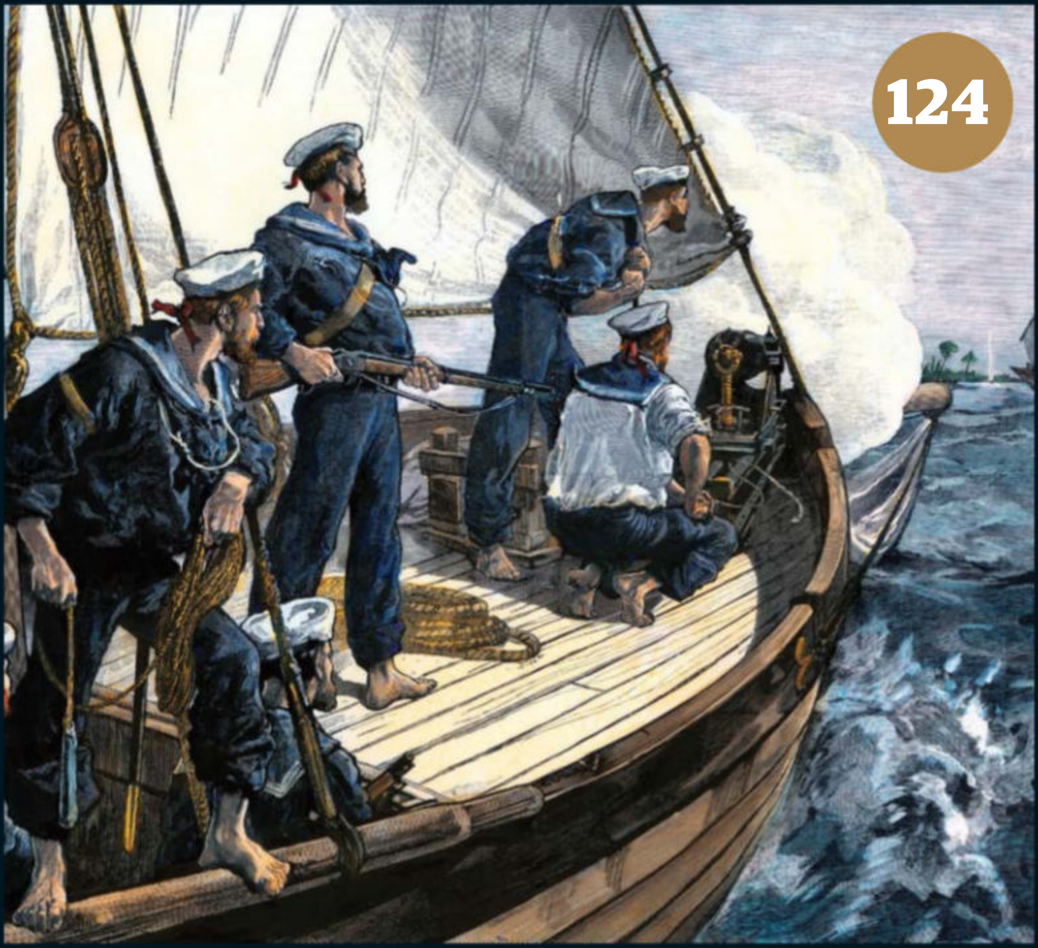
122 Rise of the Empire timeline
See the breakdown of how the British Empire gained control over colonies across the earth

124 Britannia rule the waves
Understand how the might of the British naval forces grew and became invincible

130 David Livingstone
Missionary and explorer, Livingstone's travels in Africa made him a national hero

134 Empress of India
Discover how an Indian Mutiny led to the British Raj's assumption of power

140 Pax Britannica?
Learn about how a period of relative peace was actually defined by conflict



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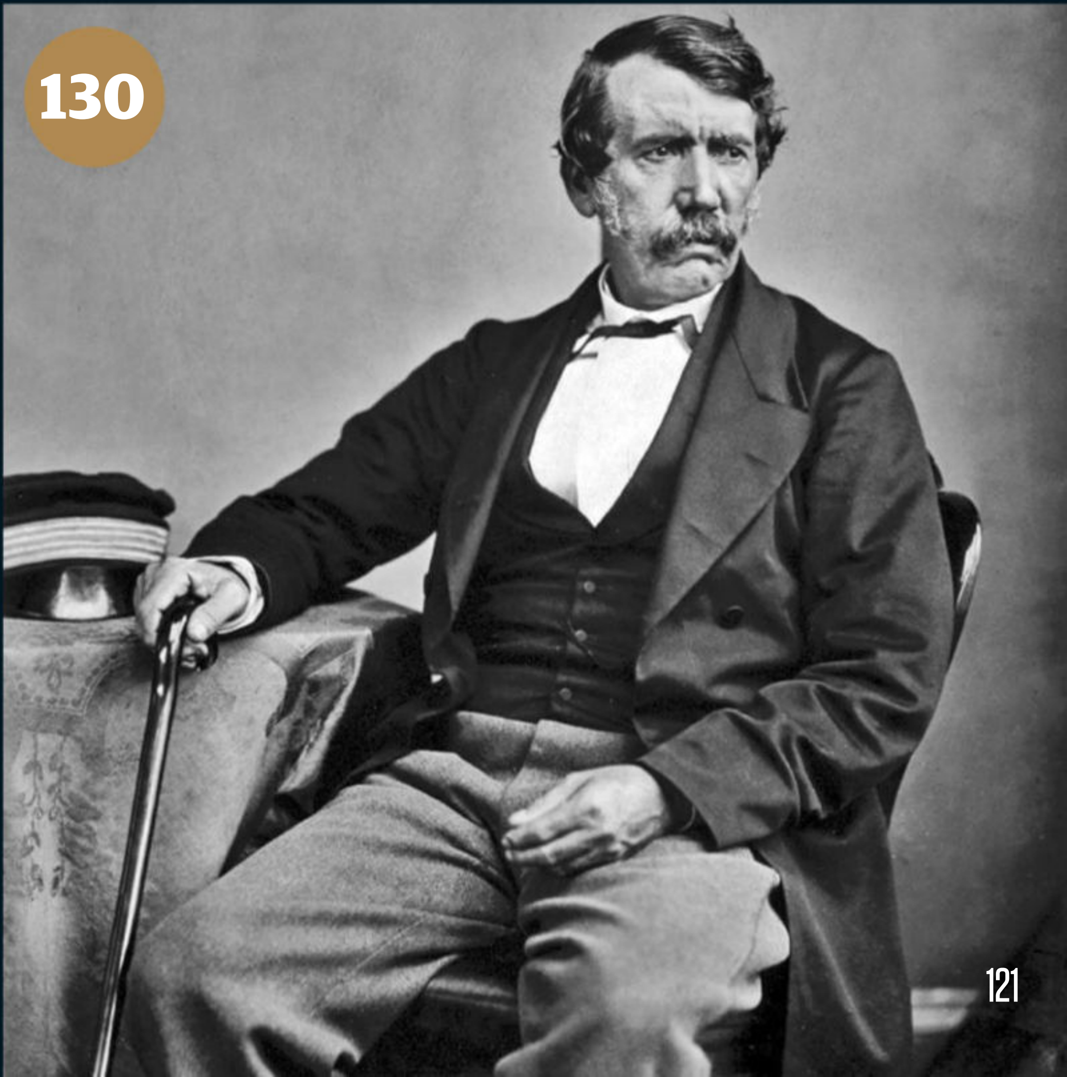
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Rise of the Empire timeline

LIVINGSTONE ARRIVES IN AFRICA

AFRICA 1841

A Scottish missionary, David Livingstone was drawn to the great unexplored plains of Africa to spread Christianity to the populace. He was also staunchly opposed to the slave trade and tirelessly petitioned to have it abolished. His journey to instil Christian beliefs in the people of Africa led him across the Kalahari and he followed the Zambezi River to its source at the Indian Ocean. The first European to cross southern Africa, his adventures mapped much of the unexplored territory, which would be hugely important later when European powers began to scramble for territory there. He became obsessed with locating the source of the Nile but died before accomplishing this feat. His heart was buried in the African village in which he died.

Livingstone resigned from the London Missionary School as it wanted him to do less exploring and more preaching

Over 20,000 soldiers of the British Empire lost their lives in the conflict

Second Boer War

SOUTHERN AFRICA 1899-1902

When a major gold field was discovered in Boer territory, Britain began to take interest in the region that it had all but abandoned after the mess of the First Boer War. Prospectors streamed in, but the Dutch-speaking Boer settlers regarded them as a threat to their independence and so the two forces went to war. British reinforcements poured in and dealt a crushing defeat. Pretoria, Johannesburg and Bloemfontein all fell to British control. While the British gained territory in the region, the war was heavily criticised as representing the worst of imperialism.

The Anglo-Ashanti wars
Although the Ashanti put up an impressive defence, the Ashanti Empire, now Ghana, becomes a British protectorate.
1824-1901

The Anglo-Ashanti wars included five conflicts between the two empires

Railway mania
Britain sinks huge investments into expanding its railways, laying over 5,000 miles of track.
1844

The Don Pacifico affair
The rights of British citizens worldwide are affirmed when the government aggressively defends David Pacifico, a British subject whose house was plundered.
1847-1850

Second Anglo-Burmese War
Britain gains lower Burma as territory of the East India Company after victory in the Second Anglo-Burmese War.
1852

Crimean War
In the only war fought between Britain and another imperial power in the era, a British victory proves a major setback for its main rival, Russia, and opens the Black Sea to peaceful trade.
1854-1856

Battle of Bomarsund in the Crimean War, fought by the Anglo-French and Russia

1806 1830 1840 1850

The Great Engineer
Isambard Kingdom Brunel is born. He goes on to construct numerous engineering projects such as the Great Western Railway and steamships.
1806-1859

First Anglo- Afghan War
Fearing a Russian invasion of India via Afghanistan, Britain invades the latter. While military victory is achieved, it is regarded largely as a costly disaster.
1839-1842

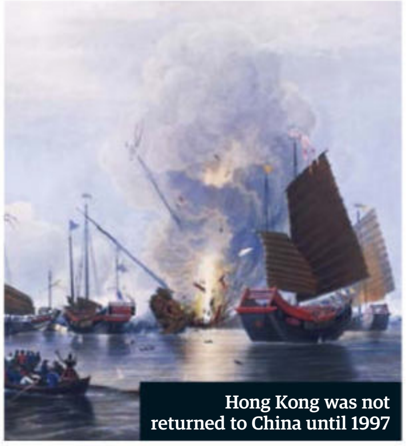
The war is seen as the major conflict during the 'Great Game' fought between Russia and Britain

The Falklands dispute
After facing a threat from Argentina, the Falkland Islands in the South Atlantic Ocean become a Crown colony.
1840

The Great Exhibition
Organised by Prince Albert, the exhibition helps encourage support for the expanding Empire among the public
1851

Charles Darwin, Charles Dickens and Lewis Carroll were just a few of the famous faces who visited the Great Exhibition

Second Opium War
Unsatisfied with the terms of the First Opium War treaty and the Qing Empire's failure to implement them, Britain goes to war with China again.
1856-1860

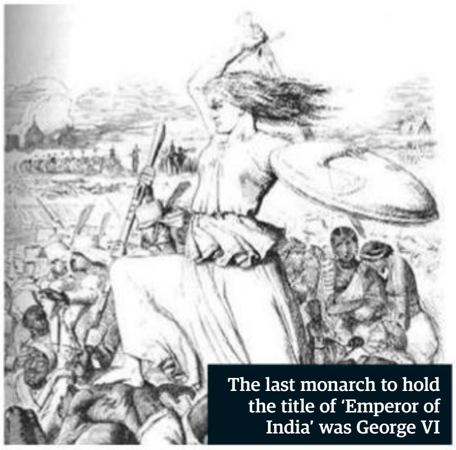


Hong Kong was not returned to China until 1997

The First Opium War

CHINA 1839 - 1842

In the early 19th Century, British merchants started importing opium into China in order to earn silver to pay for Chinese goods. When Chinese officials cracked down on trade of the drug, Britain sent in the gunboats. China was forced to open up more ports to trade with Britain, and also grant it the island of Xianggang, later to be called Hong Kong.

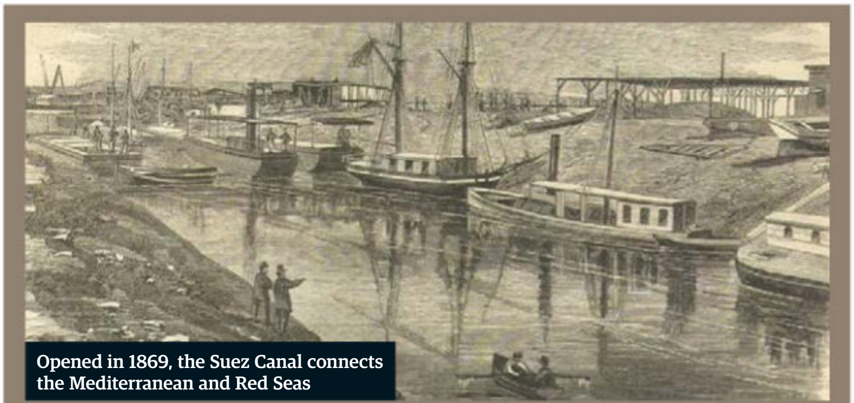


The last monarch to hold the title of 'Emperor of India' was George VI

British Raj

INDIA 1858

For a century, the British East India Company had gradually taken control of much of India. Its domination of the region was vital to British trade, but in 1857 it was challenged by a series of rebellions. In 1858, rule of India was transferred to the Crown: the British Raj. Since India was the 'jewel in the crown' of the Empire, providing not only spices and jewels but a considerable army, great focus was placed on ensuring safe trade routes to and from the subcontinent.



Opened in 1869, the Suez Canal connects the Mediterranean and Red Seas

THE SHORTCUT TO ASIA

EGYPT 1875

The British had been against the Suez Canal, as they thought it would threaten their dominance of international trade by allowing ships to forgo the long journey around Africa to reach Asia. However, in 1875 an opportunity arose for Britain to buy shares in the canal, as the Egyptian khedive was experiencing financial problems. All was set for the French and British to work together as joint shareholders, until France's political issues at home forced the country to withdraw. This allowed Britain to take effectively take full control of Egypt, and British ships quickly began to guard the vital route through the canal.

Disraeli's mission

ENGLAND 1804 - 1881

A much-favoured prime minister by Queen Victoria, Benjamin Disraeli thoroughly believed in British imperialism and was determined to expand the Empire while he was in power. In opposition to his long-time rival, William Gladstone, who was much loathed by the queen, Disraeli supported the expansion of the British Empire. In particular he looked to advance in Africa, which he proved with his purchase of shares in the Suez Canal. He also bestowed Victoria with the title 'Empress of India', asserting British control over India and elevating Britain's Empire on the world stage for all to see.

Disraeli had a long rivalry with the Liberal leader William Gladstone

British North America Act
The Dominion of Canada is created. The federation benefits from self-government but external affairs are handled by England. **1867**

Congress of Berlin
Britain gains Cyprus, which is leased to it by Turkey, strengthening the Empire's hold on the Mediterranean. **1878**

Second Anglo-Afghan War
Britain finally achieves its geopolitical objectives after invading Afghanistan again, and control of the nation's foreign relations falls to the Empire. **1878-1880**

Splendid isolation
Lord Salisbury encourages a policy of isolation, where Britain endeavours to keep itself in good standing with all nations, but have no formal allies. **1890**

Heligoland-Zanzibar Treaty
Britain agrees to give Germany the island of Heligoland in return for Zanzibar, which will play a key role in British control of East Africa. **1890**

Britain attempted to downplay the strategic importance of Heligoland to the German Empire

1860 1870 1880 1890 1902

The Free State-Basotho Wars
The wars between the Basotho kingdom and the Boers' Orange Free State result in Basotho being annexed by the British Empire. **1858**

Cobden-Chevalier Treaty
A Free Trade treaty is agreed between Britain and France. As a result, the value of British exports to France more than doubles. **1860**

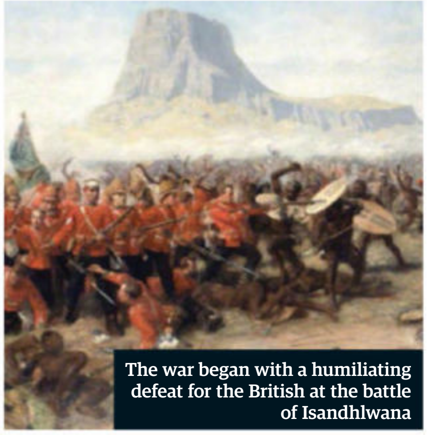
Another colony
After previously declining to do so in 1852, Britain annexes Fiji and it becomes a British colony on 10 October. **1874**

The Berlin Conference
The great European powers gather and lay down the rules of how the African continent is to be divided between them. **1884-1885**

Lord Salisbury
Lord Salisbury becomes prime minister. His ingenious and pragmatic approach to foreign affairs is seen as hugely beneficial to the Empire, without angering other great powers. **1885-1902**

Lord Salisbury served as prime minister for a total of 13 years

Sudan is conquered
Britain launches military campaigns in Sudan, resulting in Anglo-Egyptian rule, although it is effectively a British Empire possession. **1896**

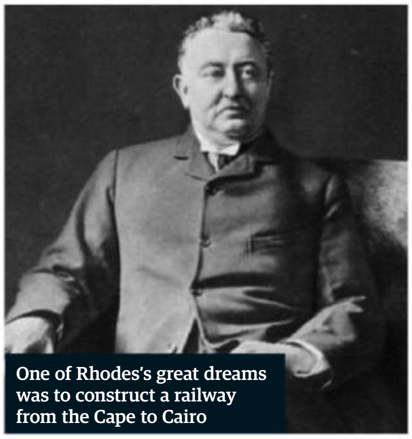


The war began with a humiliating defeat for the British at the battle of Isandhlwana

The Anglo-Zulu war

SOUTH AFRICA 1879

Sir Henry Bartle Frere had been sent to South Africa with orders to group its British colonies into a Confederation of South Africa. However, he felt great opposition from the powerful Zulu kingdom. Against the advice of the British government, he began a war with the kingdom when the Zulu chief refused to step aside. Despite impressive resistance, the Zulu kingdom was defeated, carved up and incorporated into the Empire.



One of Rhodes's great dreams was to construct a railway from the Cape to Cairo

The Rhode to Africa

CAPE COLONY (SOUTH AFRICA) 1853-1902

No single man personifies British colonialism more than Cecil Rhodes. A firm believer that British rule would benefit Africa, he was the driving force behind British expansion into South Africa. Beginning with a series of diamond mines in the region, Rhodes helped secure British control of Bechuanaland and used force to gradually expand his control over an area he named Rhodesia.

Britannia rule the waves

Britain was able to enjoy the fruits of an empire virtually unchallenged thanks to an alliance with the mightiest weapon of all: the sea

He who rules the sea rules the world. That was the message that Victoria herself had drilled into her as she prepared to ascend the throne after her uncle's death. Before aeroplanes, before tanks and nuclear bombs, it was the sea that was the most powerful weapon of all. Britain was a tiny island surrounded by water, separating it from all of its competitors, from all of its territories and from the vast swathes of its wealth. But instead of viewing this expanse of blue as an obstacle isolating their country from the rest of the world, the Victorians regarded the sea as their closest neighbour, and used it to fuel the greatest empire the world has ever known.

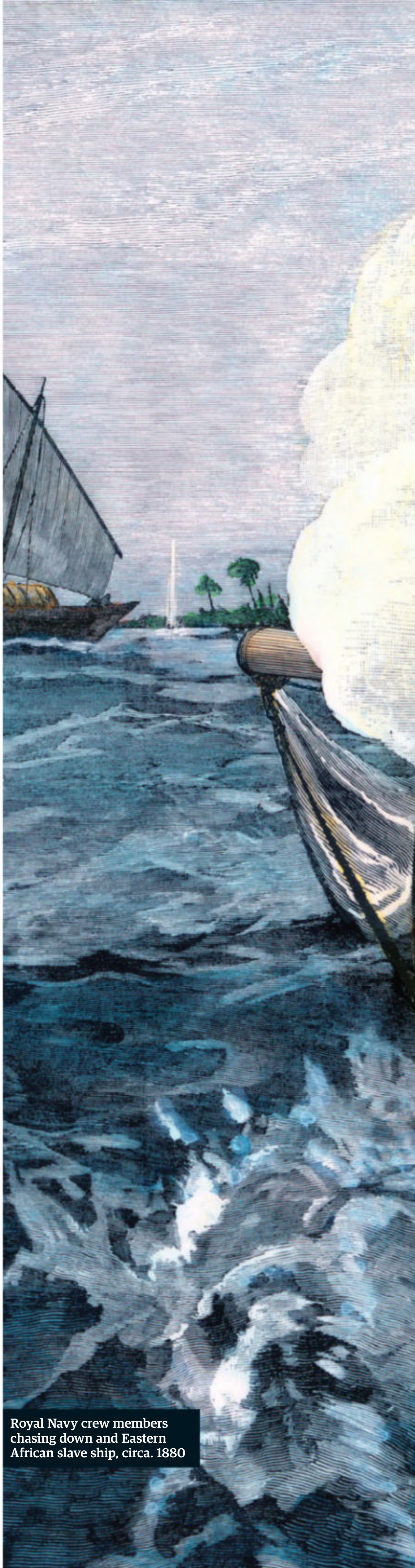
Many prominent Victorians would claim that Britain's shining era of worldwide naval supremacy was during good Queen Bess' time in the 16th Century, conjuring images of impressive British schooners crashing over the waves, striking fear into the hearts of their foes. However, they were wrong. Although there is no doubt that the pioneering English spirit during the reign of Elizabeth I laid the foundations for a future empire, it was in their own era, the reign of Queen Victoria, that the waves were truly British. When Victoria ascended the throne, she became the ruler of a nation that already boasted the most powerful navy in the world; however, maintaining it, with rivals nipping at Britain's heels, would be no easy matter.

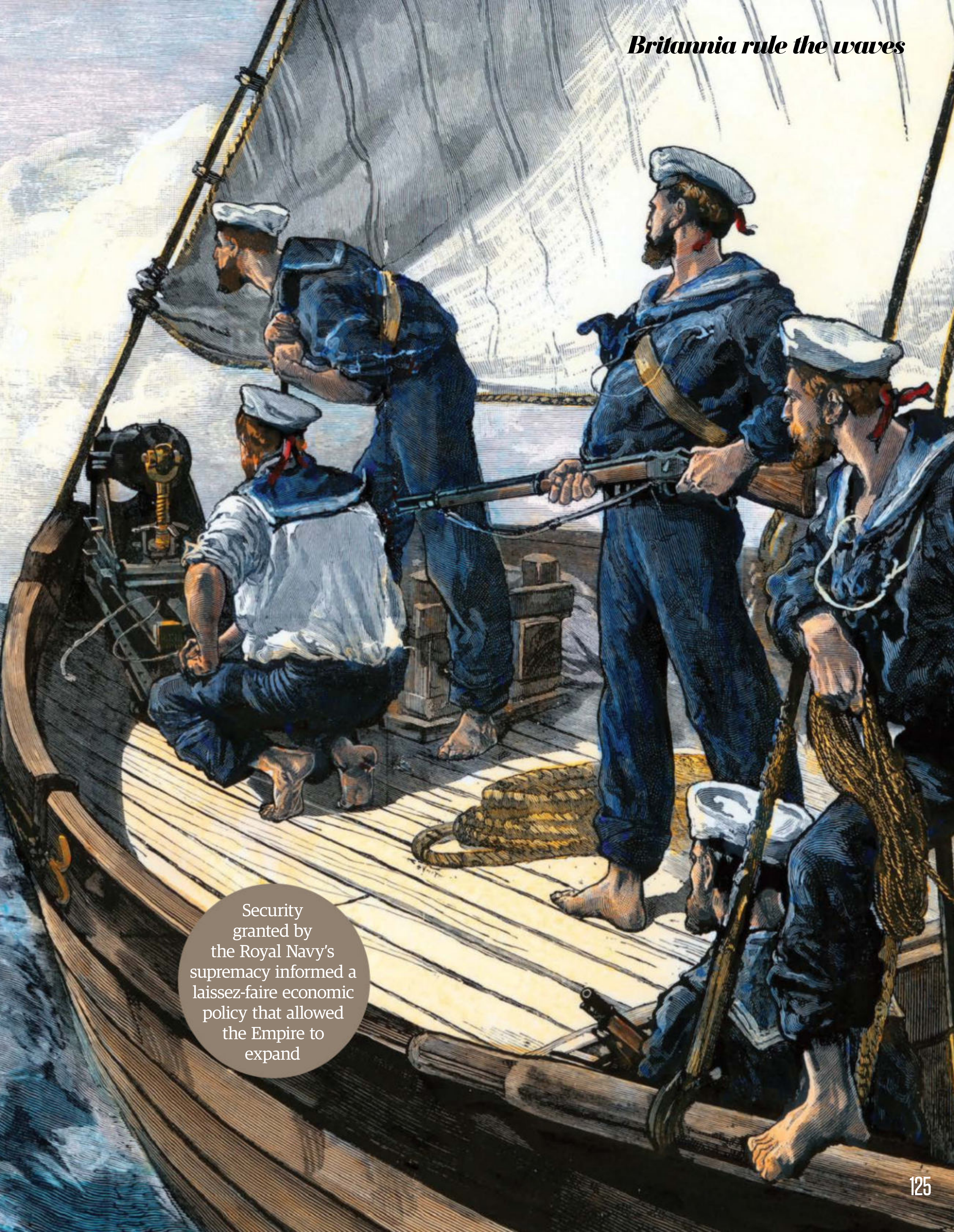
At the decimation of Napoleon Bonaparte's fleet at the Battle of Trafalgar, Britain had sent a clear and powerful message that was heard all around the world - we rule the seas. From that point onwards, the country had benefited from a period of relative peace that allowed it to expand its fleet, develop its industry and allow its empire to grow.

The navy quickly became the backbone of the Empire; British ships transported emigrants to its many overseas colonies, British ships policed and protected the Empire's interests along the coastlines of Africa and South America and, most crucially, British ships ensured that the global trade network remained protected and secure. With all of Britain's main rivals still licking their wounds from their respective defeats, the Empire flourished unhindered.

With its sturdy trade network and unrivalled access to lucrative goods from all corners of the globe, London became known as the emporium of the world. The shops were overflowing with products from the planet's furthest reaches: precious stones, spices, dresses of luxurious silks, gleaming watches, bracelets and edibles that those who had lived just a century before had never even seen or tasted. Those who were lucky enough to be able to afford to indulge in these delights felt the direct benefits that the strength that Britain's navy - and its command of the seas - brought to the country. In 1851, the Great Exhibition displayed the wonders of the Briish Empire for the world to see, and migrants flocked to Britain seeking the bounty that seemed to seep from the nation's very pores.

Most remarkable of all, and most agreeable to the British people, was that Britain had been able to


Royal Navy crew members chasing down and Eastern African slave ship, circa. 1880



Security granted by the Royal Navy's supremacy informed a laissez-faire economic policy that allowed the Empire to expand

Dominance in numbers

The figures and statistics that meant the difference between worldwide supremacy and defeat

Britain's army was comparatively small, with just

124,000

regulars in 1883 during the First Boer War. The nation chose to focus on strengthening the navy and keeping the army small and cheap, but also efficient and professional.

The British merchant fleet also grew considerably during Victoria's reign.

The tonnage of merchant vessels increased from

2,571,000 in 1839 **to** **3,565,000** tons by 1850

adding **4,314** vessels to the fleet.

In 1883, Britain had 38 battleships. By 1897, after the official adoption of the two-power standard in 1889, naval expenditure had increased the number to 62.

While Britain boasted 62 battleships, France was the next strongest navy with 36, Russia had 18 and Germany had 12. All three would have to combine their forces in order to reach a fleet greater than Britain's.

> "Britain was able to command the seas without seriously threatening other European nations' interests"

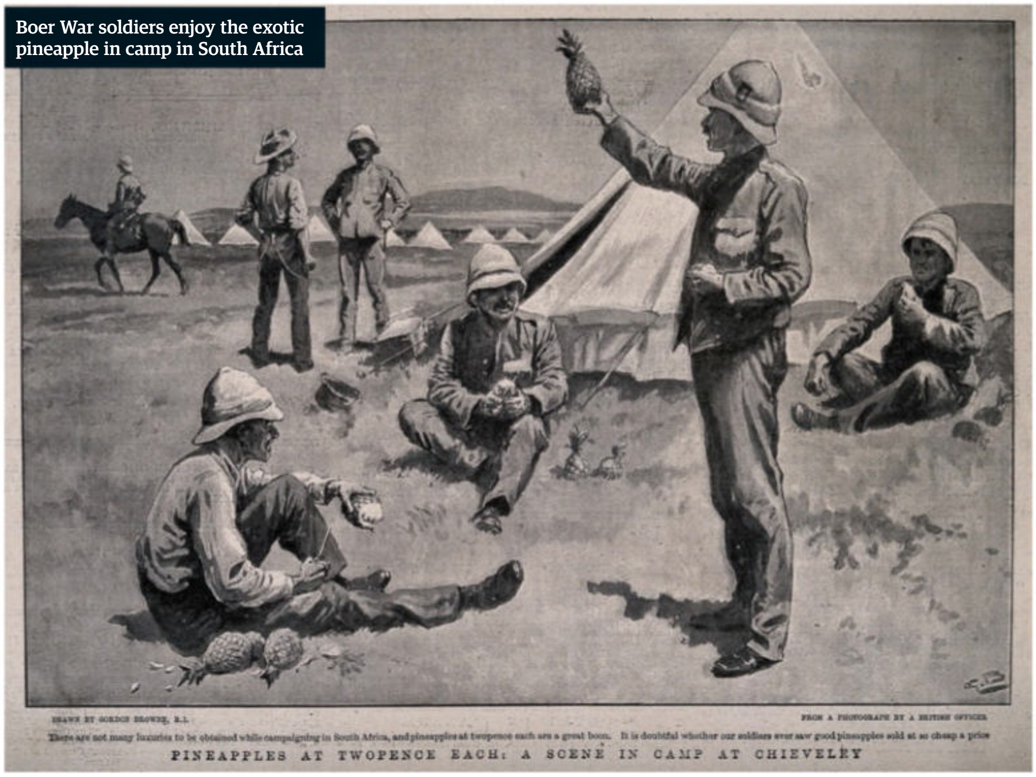
gain command of the sea without taxing its people dry. In fact, the money used to fund defence was minimal; at only £1 or less per person per year, a mere 2-3% of national income was spent on what was essentially the nation's lifeblood. This period of wealth had come at a time when no other country was capable of building and manning such a vast number of ships. None of Britain's competitors - if they could be called that - could boast the amount of overseas territory that Britain ruled, and none of them had close to the pure strength of industry enjoyed by Britain. For the early part of the 19th Century, British dominance was basically unchallenged; for nations struggling to recover from the wars of 1815, it was simply too expensive and too much effort to even consider challenging Britain. Besides, the British Empire was able to command the seas without seriously threatening other European nations' interests, so it was simply deemed easier to let Britain rule the waves. Britain didn't interfere with them, so they simply watched with jealousy as British power grew ever more potent across the globe.

British politicians were clever: knowing that aggressive policies would force other nations to build up their own industries quickly, they instead pursued a policy of free trade. Despite not having the physical number of ships that would legitimise true 'naval supremacy', the Empire would ensure that its power was felt around the world. In 1848, 31 British warships protected Mediterranean interests from rivals; 25 patrolled the East Indies and China to guard against the threat of piracy; the fight against slavers was fought by 27 ships off the west coast of Africa, ten in the cape and ten in the West Indies; 12 ships policed stretches of the Pacific; and 14 looked out for British interests off the coast of South America. Meanwhile, only 35 ships remained in British waters, 12 of which were stationed in Ireland. Britain was not only confident of its unchallenged power, it was flaunting it. The world fell hook, line and sinker for it.

However, this would not last for long. The wounds of the continental powers gradually began to heal. They had sat back and watched as Britain enjoyed the bounty of its empire for long enough. It was France, under the reign of Napoleon III, that would first pose a threat to the master of the seas. France had let its military might be known during the Crimean War, and although the two countries had fought as allies, Britain was growing wary of its long-time foe. As France's naval power steadily grew, it built the first ironclad vessel - the Gloire - and Britons became increasingly worried that the next French blow might be aimed at them.

The British Parliament was so concerned about this growing French threat that the Royal Commission on National Defences was appointed

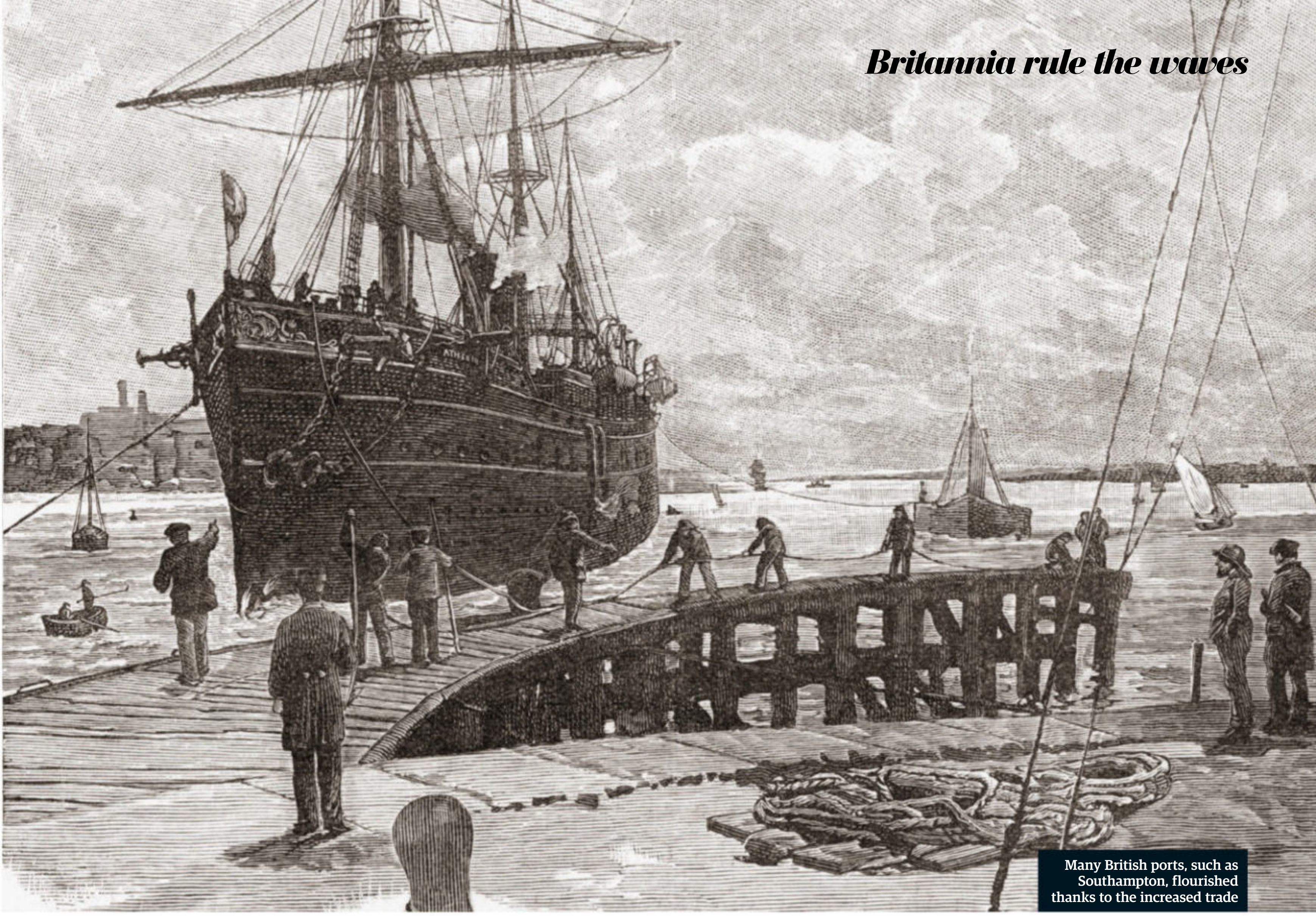
Boer War soldiers enjoy the exotic pineapple in camp in South Africa



DRAWN BY GORDON BROWNE, R.I. FROM A PHOTOGRAPH BY A BRITISH OFFICER

There are not many luxuries to be obtained while campaigning in South Africa, and pineapples at twopence each are a great boon. It is doubtful whether our soldiers ever saw good pineapples sold at so cheap a price

PINEAPPLES AT TWOPENCE EACH: A SCENE IN CAMP AT CHIEVELEY



Many British ports, such as Southampton, flourished thanks to the increased trade

to consider the matter in 1859. Lord Palmerston, newly elected as prime minister at the age of 71, made his position very clear: allies they may have been once, but he didn't trust Napoleon III one bit. The Royal Commission advised that money should be poured into fortifying the country's coastlines for what now seemed an inevitable attack. However, there were many in the House of Commons who didn't agree with this, instead encouraging extra spending towards increasing the size and might of the navy itself. Palmerston, concerned and somewhat obsessed by the ever-growing French navy, managed to frighten Parliament into granting £200,000 for new British ironclads. There was no doubt that Britain ruled the seas, but the era of casually revelling in this fact was over - and naval supremacy became not an accepted norm but a focus, whatever the cost.

Although it seemed a sudden and panicked reaction, it was a reasonable one. Admiral Sir John Fisher, a man who would play a prominent role in reforming the Royal Navy, once said, "It's not invasion we have to fear if our navy's beaten, it's starvation," and this rang true. Britain was a nation that had built its empire on supremacy of the sea and the trade that brought; if that was threatened, everything was likely to crumble to pieces. On the

The backbone of the British navy

Britain knew that its strength lay in its navy; Napoleon's defeat at Trafalgar, setting him on track for his eventual demise, had been proof. While other countries split their resources in developing their navies, armies and land defences, Britain focused on one thing alone: the Royal Navy. This effort to build up the navy's strength was fruitful, and soon it was the most powerful in the world. Other countries began to take notice. France, Russia and Germany especially began to build up their navies, as well as the rapidly developing Japan. Britain had to be careful – if any other country got close to its power, it risked Britain's supremacy being challenged. Even worse; if they combined their forces, it could be disastrous. So in 1889, the Naval Defence Act formally adopted the 'two-power standard'. This called for the British Navy to be as strong as world's next strongest navies combined. Although this concept had existed previously, this was the first time it became an official policy. Because of this, new funds were immediately ploughed into shipbuilding, producing ten new battleships and 38 cruisers. Thanks to the two-power standard – and the British attention to its enemies, rather than its own success – the Royal Navy remained the strongest virtually unchallenged force in the world for many more years.

Eight Royal Sovereign class battleships were ordered after the act was passed surface there were no wars, no bloody battles or dramatic clashes; bubbling underneath, however, as each country steadily increased its fleet, was the inevitability of an ultimate clash. And it wasn't just France that Britain had to fear, as two other huge rivals were stepping up their game.

Russia had begun to deploy ever growing naval forces in the Black and Baltic seas. At the same time, the USA, no longer distracted by its civil war, had the advantage of high wartime tariffs and a now powerful and united state. Italy was also steadily increasing its naval power, and as Japan rapidly modernised, its navy grew in turn. If Britain stood idly by, there was no doubt that the sea supremacy that had built the greatest empire on earth would be snatched from under it.

Back in March 1848, the then foreign secretary Lord Palmerston had stated, "It is narrow policy to suppose that this country or that is marked out as the eternal ally or the perpetual enemy of England. We have no eternal allies, and we have no perpetual enemies. Our interests are eternal and perpetual, and those interests it is our duty to follow." Over the next six decades, until the end of Victoria's impressive 63-year-long reign, control of the country would pass between an array of very different men. Lord Palmerston, Benjamin Disraeli and Lord Salisbury all differed hugely in style and personality, but they were united by one thing – the pursuit of British interests and the belief that, above all, the navy must be fortified. Even William Gladstone, reluctant to pour finances into the navy, was surrounded by cabinet members who did not share his opinion.

As a result of this, from 1860 right until the end of Victoria's reign, military expenditure was poured into ensuring that the British navy was the strongest and most advanced in the world. Britain entered a period of experimentation: new types of ships were created, and then evolved, with the newest advancements quickly superseded by something newer, stronger. Steam vessels appeared in greater numbers, then screw propellers ensured they had the power to speed across the waves. Warships soon became the focus; strong and mighty iron was used in construction, which led to powerful, armoured ships. When Britain's competitors also created their own iron ships, it responded with new, powerful guns that could penetrate the iron armour, and the thickness and durability of British ships grew in turn. Next were torpedo boats, then torpedo boat destroyers and on and on. The British fleet grew to contain the most spectacular array of types and different forms, a cornucopia of sea technology developed over the space of just 40 years.

It was a time when energetic and reform-minded men like John Fisher, who had entered the navy penniless and unknown, could rise to become one of the most important men in the country. Fisher was determined to boost the speed at which ships were made, and he tirelessly championed a series of naval reforms that saw the navy transform into a lethal and formidable modern fighting force. "When you are told a thing is impossible, that there are insuperable objections," Fisher said, "then is the time to fight like the devil." And fight Britain did, determined to prove that its empire was far more than the result of 'good timing'. Thus, innovations transformed the navy and it grew and grew. The British people and government, were, for once, in agreement; the navy was vital, and in 1894, when prime minister William Gladstone tried to hold out against yet another significant programme of naval construction, he was outvoted, alone, and forced to resign. Just three years later at the Spithead naval review, 165 British warships – including 21 first-class battleships and 54 cruisers – proudly demonstrated the size and strength of the Royal Navy for the world to see.

Inventions that fuelled an empire

Reefer ships

Previous attempts to ship frozen food had been foiled by time, insulation and climate. In 1882, the first ships fitted with a refrigeration machine brought frozen meat into Britain from New Zealand. The machine used a combination of steam power and air compression to maintain the perfect temperature.

Ironclad warship

After France built its first ironclad warship, the Gloire in 1859, Britain was quick to respond with the HMS Warrior and Black Prince. These huge ships were not only powerful, but incredibly fast for their size. Ironclads soon made traditional wooden vessels obsolete, forcing all of Britain's main competitors to construct their own.

Screw propeller

Most 19th-Century ships used a combination of steam and sail. Around 1835, two inventors living in Britain – the Swedish engineer John Ericsson and Francis Pettit Smith – began to work on making screw propulsion a reality. In 1838, the first large vessel, the Archimedes, was fitted with the technology and reached an impressive 10 knots an hour.

Rotating gun turret

Battleships in the early 19th Century were fitted with rows of guns either side, resulting in limited firepower and accuracy. During the Crimean War, English captain Cowper Phipps Coles constructed a raft with a 32-pounder gun protected by a cupola. After seeing the damage it did, he set about creating a ship with an all-round arc of fire. His designs were soon installed in several Royal Navy ships.

LIFE AT SEA

New technology changed the way sailors lived at sea in the 19th Century and safety was slowly improving, but the long and arduous journeys were far from smooth sailing

DAY ONE
6 APRIL 1865

Set sail today. Several of the crew had to be replaced at the last moment as a great number of men refused to set sail on board a 'dangerous ship'. Rumour has it that they'll be arrested and found guilty of desertion, so I kept my head down and stayed in the shadows until we set sail.

DAY TWO
7 APRIL 1865

There are some new fellows on board this fancy steamship: 'marine engineers'. Apparently they used to be train drivers! These new chaps work the ship's engines, but to be honest, us old-timers are a bit confused how they fit into the ship's ranks.

DAY THREE
8 APRIL 1865

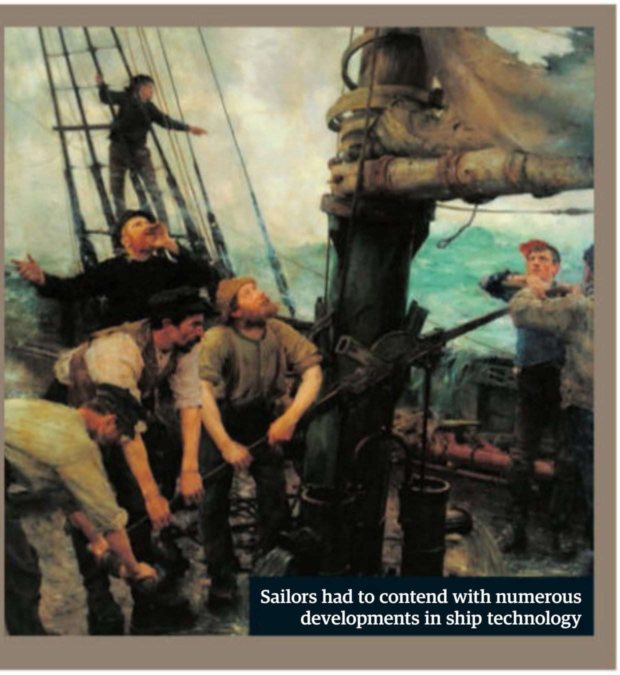
There were some mighty strong winds that blew the seas into a frenzy last night. The ship took some flak and has started to leak. It doesn't matter how much fancy new technology they come up with, ships will always take in water. We pumped it out as best we could.

DAY FOUR
9 APRIL 1865

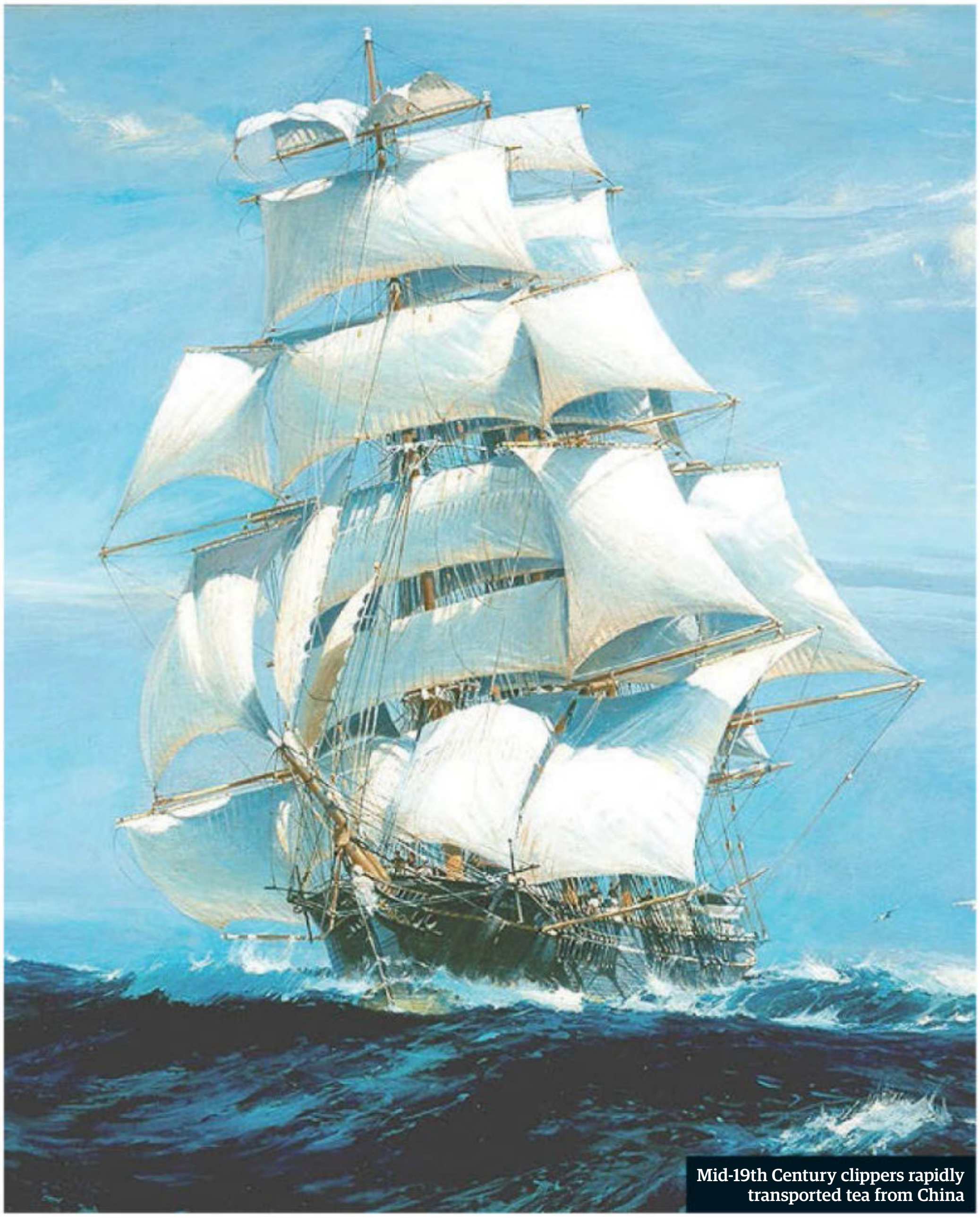
More and more of the men are falling ill and that useless surgeon insists that treating them with rum is the best cure. I can think of only one purpose of rum and it's not to cure an upset stomach. It is even struggling to raise the men's spirits.

DAY FIVE
10 APRIL 1865

Five days in and some of the new men are already complaining about the food. Yes, it's bland and repetitive but at least there's enough of it. We have plenty of canned food to go around, although I must admit I'm a bit jealous of the bread and meat reserved for the officers.



Sailors had to contend with numerous developments in ship technology



Mid-19th Century clippers rapidly transported tea from China

Top imports & exports

Import: Coffee

Although Britain is known as a tea-drinking nation, in 1840, the year of Victoria's marriage, the country imported 70 million lbs of coffee, compared to 28 million lbs of tea. It wasn't until 1853, and the growing tea plantations in India, that tea began to overtake coffee as the nation's preferred drink.

Import: Eggs

In the 19th Century, Britain hadn't yet perfected modern poultry breeding methods. With British hens only laying eggs during the hotter spring and summer months, the country was forced to import some 123 million of them in 1853 alone.

Export: Coal

Coal was the backbone and fuel of British industrialisation and between 1860 and 1900, annual coal production rose from 80 million tons to more than 225 million. A quarter of this huge quantity of coal was exported overseas, meaning that coal accounted for a tenth of all British exports.

Export: Steel

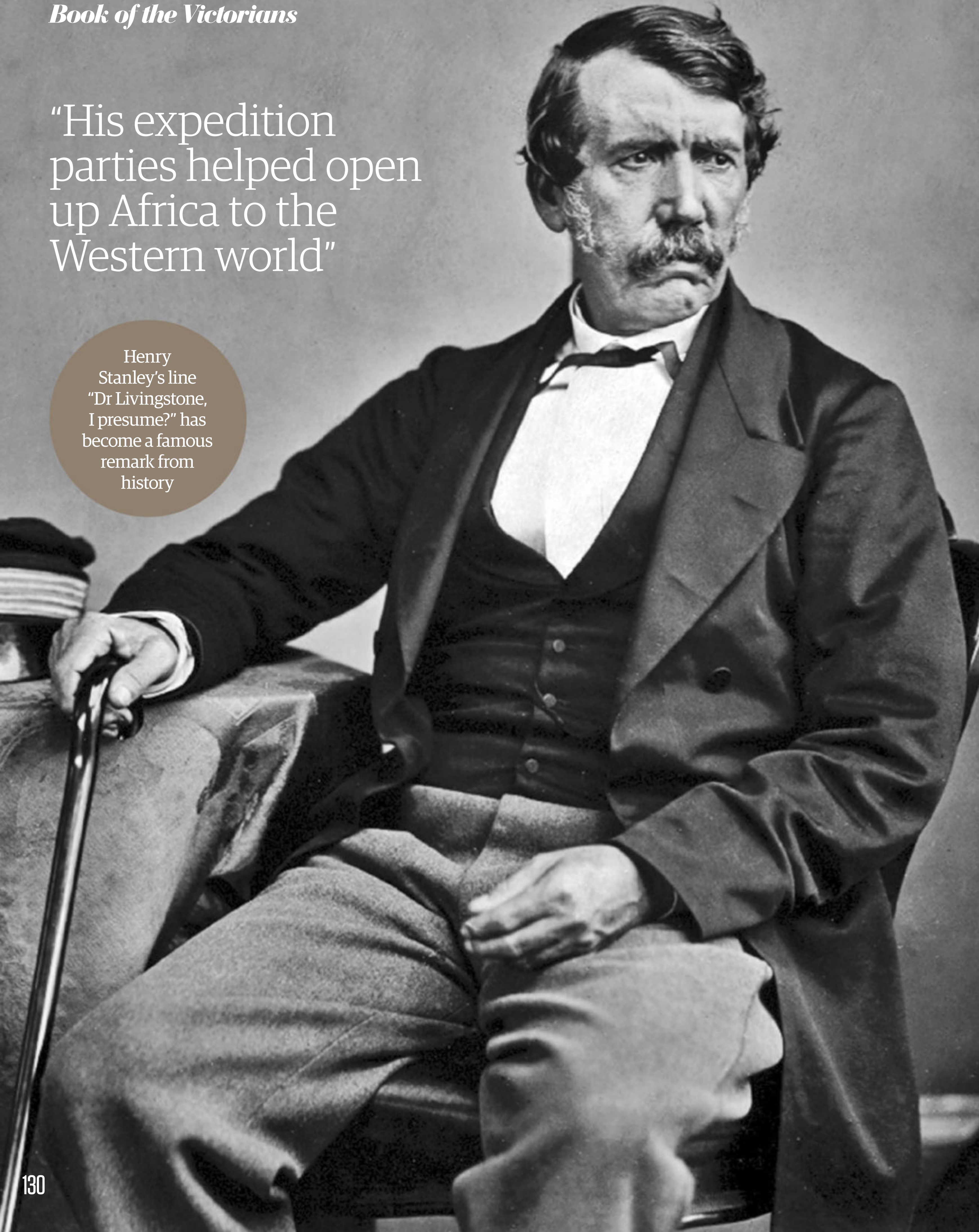
Another rapidly developing industry during the Victorian era was steel production. In 1870, Britain was producing around 300,000 tons of steel, but by 1900 this had increased to 5 million, with approximately 1 million of this being exported.

> "Military expenditure went into ensuring that the British navy was the strongest and most advanced in the world"

Britain was still master of the sea, but in its absolute focus on the navy it had underestimated a growing powerhouse of trade - the railway. Ironically a British invention, the railway had hugely aided in the industrialisation of Russia, the United States and central Europe. It allowed landlocked or partially landlocked countries to transport trade goods more cheaply and faster than by water, as well as enabling the rapid transportation of men - most significantly, armies. Despite the size of its naval forces, Britain saw its percentage of world production of steel and pig iron plummet between 1875 and the end of the century. While in 1875 the nation produced 46 per cent of the world's iron, that fell to just 14 per cent; meanwhile the United States' percentage rose from 15 to 40 per cent. Britain's competitors, it seemed, had finally risen out of the shadows.

It was towards the end of Victoria's reign, in the summer of 1900, that the most dangerous threat to British naval supremacy arose. This came in the form of an emerging competitor: imperial Germany. Outraged by British cruisers demanding to search German mail streamers in the heat of the Second Boer War, Germany pushed through the Second Naval Law. This bill saw the size of the German fleet double from 19 to 38 battleships, while also adding an array of new battle squadrons. This rapid development sent a clear and concise message to Britain: it was not the only nation with the resources capable of rapidly building a fleet that was poised and ready for battle.

Britain, struggling to maintain a two-power standard, could not fathom a three-power one. The Empire had, in spirit, stood alone against a world of competitors, but as the Victorian era drew to a close, the island nation was beginning to realise that it would have to share the sea with allies, or else lose control of it completely.



“His expedition parties helped open up Africa to the Western world”

Henry Stanley’s line “Dr Livingstone, I presume?” has become a famous remark from history

David Livingstone

The legendary Scottish explorer dedicated his life to exploring Africa and had an obsession for finding the true source of the River Nile

Before the first missionaries began to explore the continent, Africa was a vast unknown landmass for most Europeans and people from the Americas. One of the men who helped open up the hitherto mostly unseen continent was a Scot by the name of David Livingstone. He and a select few explorers blazed a trail through the region, initiating the 'Scramble for Africa' which would alter the political and economic landscape of the continent forever.

Born just south of Glasgow on 19 March 1813 in a tiny hamlet called Blantyre, Livingstone began working in a cotton mill at the age of ten. He was taught to read and write by his shopkeeper father and by 1836 he had gathered enough funds to begin studying medicine and theology. This rise from working-class life in Scotland to international fame was a very rare feat in the Victorian era. Livingstone undertook his studies at Anderson's University, Glasgow but later moved to London to continue his education at various institutions. His goal was to become a missionary doctor and go to China, but was advised against travelling to the war-torn nation. In 1841 he was posted by the London Missionary Society to the Kalahari Desert in southern Africa, exploring Lake Nagmi in present-day Botswana.

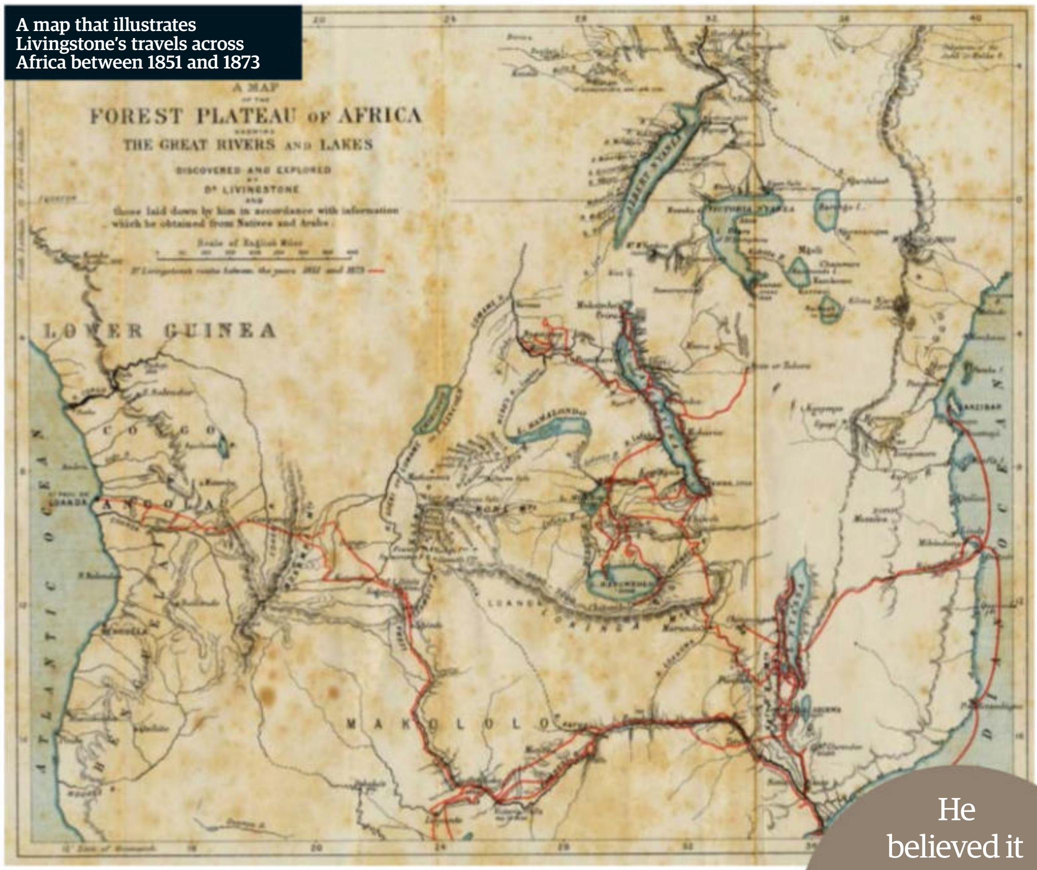
Livingstone and his wife Mary had six children: Robert, Agnes, Thomas, Elizabeth, William Oswell and Anna Mary

Livingstone was a man of God and on this first trip he introduced the peoples of Africa to Christianity and worked tirelessly to prevent the spread of the slave trade. By the time he returned to Britain in 1856, Livingstone had become a national icon. He embarked on speaking tours to tell of his experiences and wrote a bestselling book, *Missionary Travels and Researches in South Africa*.

By 1851 he had traversed the whole of the Kalahari on a combination of canoe, ox-back and on foot, almost dying from disease and wild animal attacks. Remarkably, his wife and children had initially joined him, but were forced to return home after a year due to ill health. He didn't stop, continuing to the coast in what is now modern-day Namibia and Angola.

In May 1856 he became the first European to cross the width of southern Africa as he reached the mouth of the Zambezi in Quelimane (present-day Mozambique) at the Indian Ocean. Known as the 'Smoke that Thunders' by locals, the colossal Zambezi waterfalls were renamed 'Victoria Falls' by Livingstone.

A trailblazer, he was the first recorded white man to meet the local tribes of southern and central Africa. It is said that he personally released 150 slaves who worked near Lake Nyasa. His expedition ran into trouble when they had to abandon their original boat and there was a lot of infighting within the crew on the way. During his visits, he gained a reputation as a healer or 'medicine man' as he made a routine of treating the ill native Africans.


A map that illustrates Livingstone's travels across Africa between 1851 and 1873

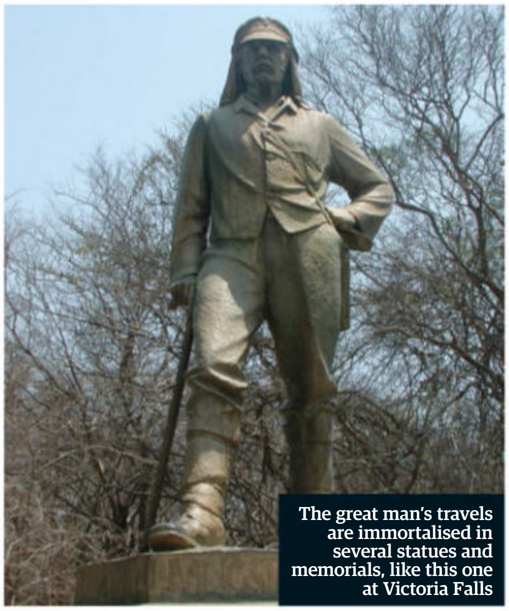
His skill at removing tumours, for example, was unheard of in this part of the world.

A prolific writer, Livingstone made sure that all his findings were noted down. His conclusions in *Narrative of an Expedition to the Zambesi and Its Tributaries* helped advance the knowledge of scurvy and malaria, diseases that were prevalent across the globe at this time. He was the first to use the drug quinine as a remedy for malaria, and his careful and methodical approach helped make his transcontinental journey one of the lowest ever in terms of death rates. The Scot was one of the first to link mosquitos to malaria and climate to the spread of tropical diseases.

After more official government-funded tours in the late 1850s, Livingstone had a tough few years. His wife Mary died of malaria in 1862, then two years later he was ordered to return home by a government unimpressed with his work. One of Livingstone's major aims was to publicise the horrors of the slave trade. Back in Europe, not many knew of the callous ways in which African people were being taken from their homelands and forced into labour. He became a staunch abolitionist and used his pen to raise awareness at home to what was happening.

Unfortunately, his constant excursions can be argued to have had a negative effect on the future of Africa. By discovering a whole wealth of villages, water sources and trade routes, Livingstone and his expedition parties helped open up Africa to the Western world. As a result, colonialism and the 'Scramble for Africa' by the major European nations was made easier. Some see imperialism as owing a lot to Livingstone and his fellow explorers.

> He believed it was his calling to explore Africa and open it up to Christianity by the will of God


The great man's travels are immortalised in several statues and memorials, like this one at Victoria Falls

Defining moment

University life

1836-41

Using savings amassed from years of hard work at Blantyre mill, Livingstone finally has enough money to go to university in 1836. After two years at Anderson's College, Glasgow, he suspends his studies in favour of a year training with the London Missionary Society. He eventually moves to London in 1840 to complete a course in Medical Studies at the British and Foreign Medical School before returning to Glasgow to qualify from the Faculty of Physicians and Surgeons of Glasgow.

Defining moment

Finding a route to the coast

1852-56

Livingstone begins a four-year quest to find a route from the Upper Zambezi River to the coast. The expedition plugs many gaps in Western knowledge of Southern and Central Africa. Perhaps his most famous find is the discovery of an almighty waterfall, which Livingstone renames 'Victoria Falls' after Britain's monarch. By 1856, he reaches the mouth of the Zambezi, becoming the first European to cross the width of southern Africa. He returns home to a hero's welcome. With the mapping of the Zambezi complete, Livingstone now has his mind set on finding the source of the Nile.

Timeline

1813

Birth of an explorer
David Livingstone is born in the small hamlet of Blantyre, just south of Glasgow. Born into a working-class family, he is the second to be born out of a total of seven.
19 March 1813

1823

Schooling and early work
At the age of 10, Livingstone begins work in a local cotton mill. He finds time to study in the evenings and is taught to read and write by his father.
1823

1836

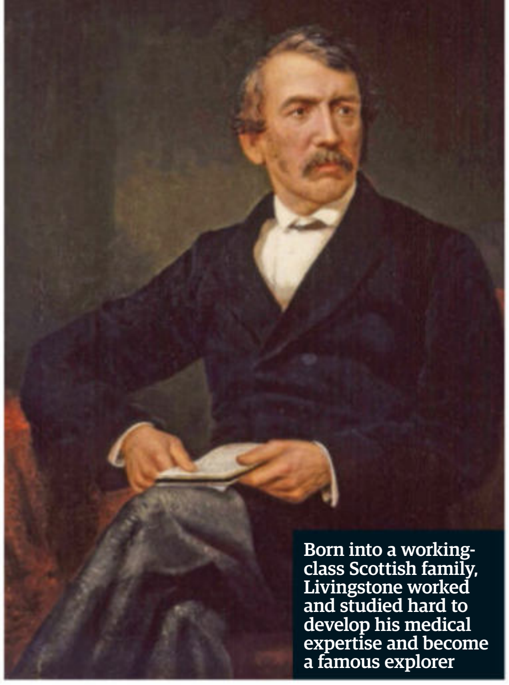
Leaves school
To further his studies, the young Scot gains a place at Anderson's University, Glasgow. He goes on to study medicine and theology and becomes interested in natural history.
1836

1841

First assignment
After word of his expertise gets out, Livingstone is taken on by the London Missionary Society and posted to the Kalahari Desert in southern Africa. His aim is to spread Christianity and bring 'civilisation' to the native peoples.
1841

1845

Happily married
Returning home from his travels, Livingstone married Mary Moffat, the daughter of a fellow missionary. They would have three sons and three daughters together.
January 1845



Born into a working-class Scottish family, Livingstone worked and studied hard to develop his medical expertise and become a famous explorer

By 1866, the 52-year-old Scot had secured enough funding to return to Africa, this time to seek the source of the River Nile and crusade against slavery. Landing at Zanzibar, Livingstone got so caught up in his exploring that the British government lost track of the great man. On the way, the explorer is said to have witnessed a massacre of hundreds of people in the village of Nyangwe on the River Lualaba, which was said to have been undertaken by Arabic slave traders.

On his journey, he lost the majority of his medicine, animals and companions. In the end, money was raised by the *Daily Telegraph* and *New York Herald* to send journalist Henry Stanley to Africa to locate his whereabouts. In February 1871, Livingstone became stuck in the village of Bambarre in Congo. With almost none of his crew left and suffering from pneumonia and tropical eating ulcers, he was not in a good condition. Reports claim that he was bedridden and had begun to hallucinate, with only the Bible to provide him comfort. He was eventually found in October in Ujiji, Tanzania, as he pressed on to find the source of the world's longest river. After staying with him briefly and taking on his fresh supplies, Livingstone parted ways with Stanley to continue his journey.

Though his health was failing, Livingstone was dedicated to his work and refused to leave Africa. This determined and stubborn attitude eventually proved to be his undoing; he died at the age of 60 at Chitambo's village, near Lake Bangweulu, North Rhodesia (now Zambia) on the night of 30 April 1873. The British public mourned his loss and he was given a prestigious burial in the nave of Westminster Abbey. He is buried next to James Rennell, a former explorer who founded the Society for African Exploration.

Livingstone is remembered as a man who firmly believed in the dignity of Africans at a time when the slave trade was so rampant over the continent. Even though he didn't quite reach the source of the Nile, his contribution to society was his constant questioning of the sustainability of Europeans using Africa as a sort of commercial enterprise. When his embalmed body was returned to Britain – via a 1,603 kilometre (1,000 mile) trek to Zanzibar that took ten months – it was found that his arm had been broken by a lion, further demonstrating the tough ordeals that he undertook on his journeys. Before the body left Africa, his heart had been buried under a mpundu tree in the village. Both metaphorically and physically, David Livingstone's heart will always be in Africa.

In the David Livingstone National Memorial in his hometown of Blantyre, his gravestone reads:

'Brought by faithful hands over land and sea, here rests David Livingstone, missionary, traveller, philanthropist, born March 19. 1813 at Blantyre, Lanarkshire, died in May 1873 at Chitambo's village. For 30 years his life was spent in an unwearied effort to evangelize the native races, to explore the undiscovered secrets, to abolish the desolating slave trade, of central Africa, where with his last words he wrote, "All I can add in my solitude, is, may heaven's rich blessing come down on every one, American, English, or Turk, who will help to heal this open sore of the world".'

> His son Robert fought for the Union side in the US Civil War and died of battle wounds on 5 December 1864

Defining moment

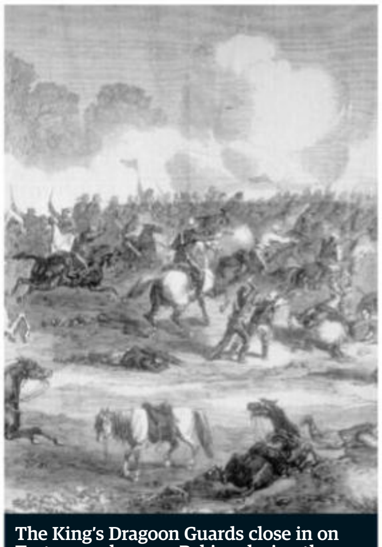
Doctor Livingstone I presume?

1866-1871

By 1866, the now veteran explorer is aged 52, but still intent on discovering the source of the Nile. The trip takes its toll as he loses animals, medicine and porters, but Livingstone soldiers on. He is gone so long that fellow explorer Henry Stanley is dispatched to find him. After a long search, Livingstone is eventually found near Lake Tanganyika in October 1871 – during their meeting, Stanley utters that now famous phrase. Livingstone is resupplied but never manages to achieve his goal after ill health causes him to stop.

The Second Opium War

David Livingstone was encouraged not to go to China, and for good reason. Between 1856 and 1860, the country was at war with the British in a conflict known as the Second Opium War. After the First Opium War ended with an unequal treaty, a Chinese vessel believed to have been smuggling initiated a second conflict. The British, assisted by American warships, responded with force, shelling Canton (modern-day Guangzhou) before being driven back by the resurgent Chinese. The Western powers sought the help of the French and returned in May 1858, this time taking Canton and a number of forts near Tientsin. The treaty of Tientsin was subsequently signed, which opened up China to trade with the West. However, China was not content with these terms and took the fight to the British fleet situated at the Peiho river. The Second Opium War came to an end with one final land assault as the British and French took Peking, resulting in the fleeing of the Chinese Emperor Xianfeng. In defeat, China didn't have any choice but to agree to Western trade terms in yet another unequal treaty. It was at this point that a 99-year lease was signed, giving Britain control of the 'New Territories' around the port Hong Kong until 1997.



The King's Dragoon Guards close in on Tartar cavalry near Peking during the Second Opium War

1856

Return home

After his expedition ends, he returns home a national hero and embarks on speaking tours around Britain. His book *Missionary Travels and Researches in South Africa* becomes a bestseller.

1856

1858

Back to Africa

The now famous explorer begins his longest excursion to date, a five-year exploration mission of eastern and central Africa. Sadly, his wife Mary would go on to die from malaria in 1862.

1858

1864

Government pressure

After an unrewarding trip, the British government orders Livingstone to return to Britain. Back home, the Scot begins to write about the horrors of the slave trade, publicising this to many for the first time.

1864

1866

One last expedition

After acquiring private funding, Livingstone sets off once again for Africa, this time in search of the source of the River Nile. He also takes this opportunity to explore the slave trade further.

1866

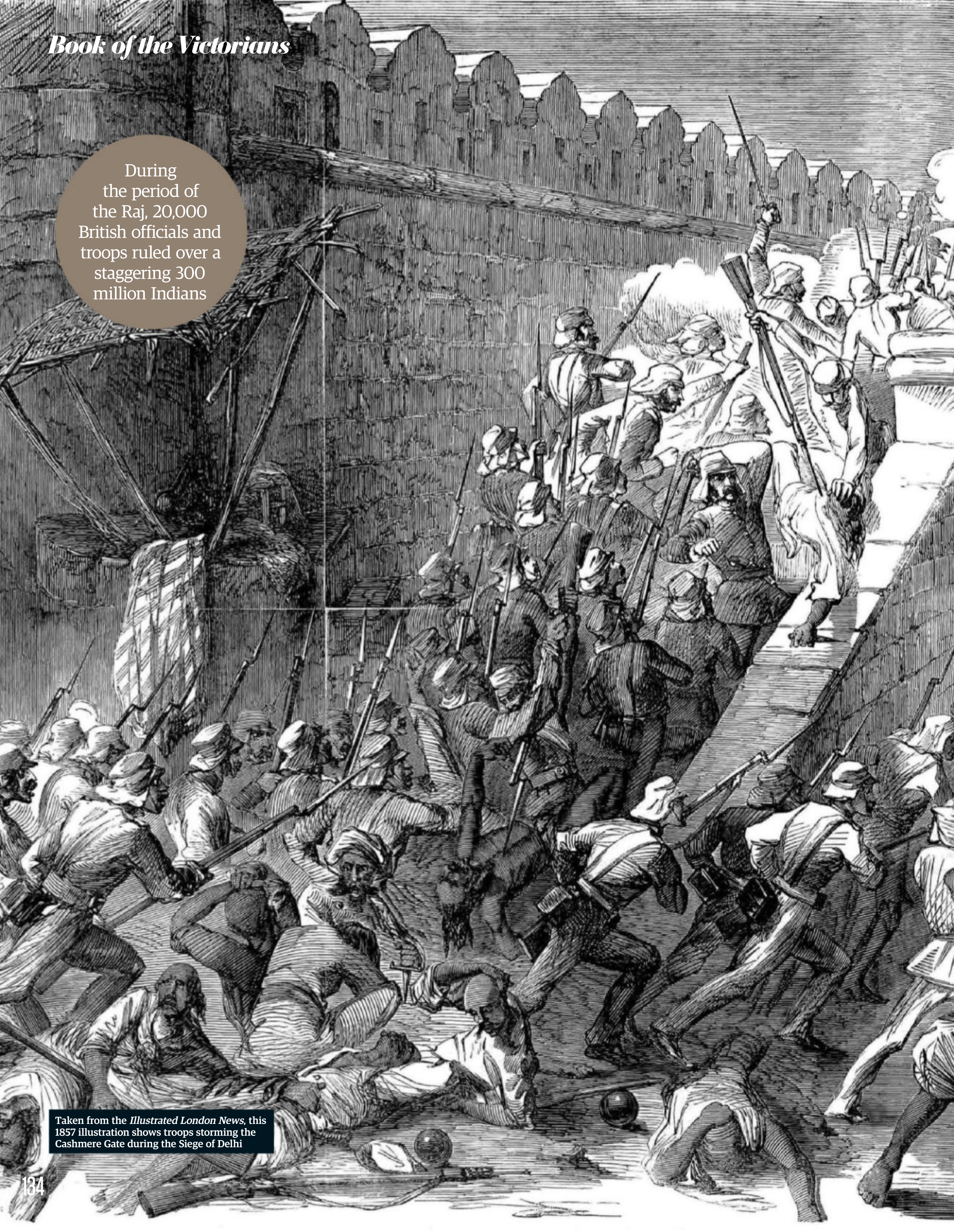
1873

Final years

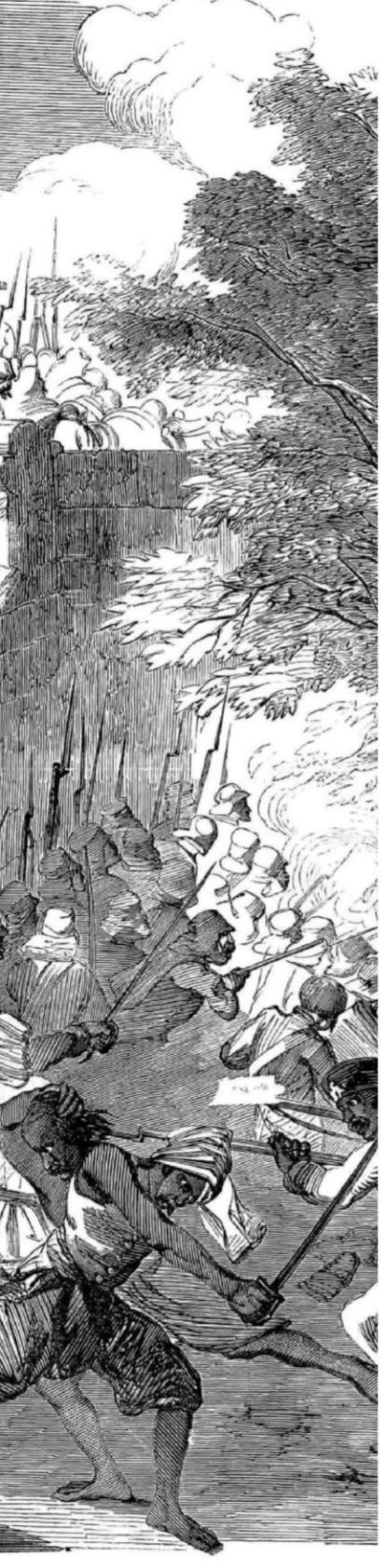
After years of exploration, Livingstone is dogged with health problems and dies on the night of 30 April 1873. He is buried in Westminster Abbey and is remembered as one of Britain's greatest explorers.

1873

During the period of the Raj, 20,000 British officials and troops ruled over a staggering 300 million Indians



Taken from the *Illustrated London News*, this 1857 illustration shows troops storming the Cashmere Gate during the Siege of Delhi



Empress of India

India was the 'jewel in the crown' of the Empire, but the journey to mounting it there was one of ignorance, violence and bloodshed

On 22 June 1897 the entire British Empire united to celebrate Victoria's diamond jubilee. Although the event officially celebrated Victoria's record-breaking reign, it came to symbolise the achievements of the British Empire the world over. There was a procession of gleaming golden carriages, and the best and brightest troops marched through the capital in an array of colours. Men and women from all over the Empire flooded to London to partake in the festivities, but one nation in particular stood as the crowning glory of the British Crown: India. Indian troops made up a huge proportion of the empire's fighting power, and the country's lucrative trade had given Britain the riches to host such an elaborate event. However, the fight for control of this prosperous and valuable nation had been a brutal and bloody one, far removed from the pomp and ceremony that now celebrated it.

It was not Britain that had conquered India. Not its Crown, government or even its armies; it had been conquered by a private trading company. Beginning with a single factory in the early 17th Century, the East India Company slowly expanded its foothold in India. As its wealth increased, it formed a private army of native troops. Any part of India that rebelled against the company was crushed by its army, and the ranks grew and grew with fresh troops. By the time Victoria ascended the throne, the East India Company owned territory ten times the size of the British Isles, containing five times the population. The men of the East India Company lived as virtual kings, enjoying the riches of their conquered land, which even included its women. Many British men took Indian wives and mistresses, but a new transport route that opened in 1837 would change everything.

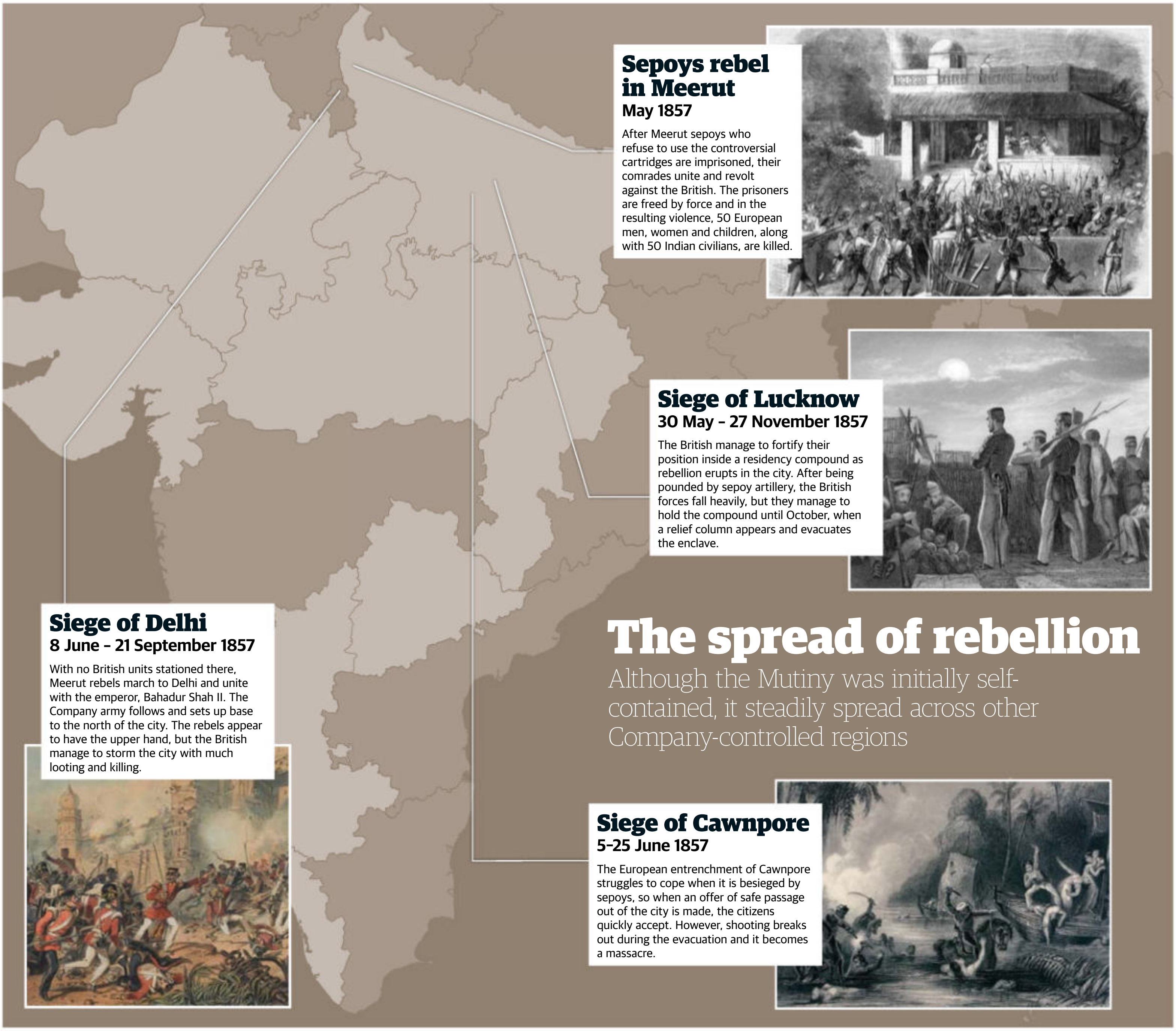
The journey to India had been a long and arduous one, but that year a speedy steamer service across Egypt and down the Red Sea was paved. This was intended to help boost trade, but it also attracted two new sets of travellers - British women and missionaries. The effect these new visitors had upon India was huge. The British men were now expected to stay with British women, and rather than being part of the household, Indians were demoted to servants and maids. The British families lived in European-only enclaves, and a gulf was driven between the two races.

The missionaries did perhaps even more damage: armed with the Bible and their Victorian ideals, they were determined to make the land more Christian and, in their opinion, civilised. They regarded Islam and especially Hinduism - the two central religions of the region - akin to idol worship. Indian traditions such as sati (or suttee), which entailed a widow throwing herself onto their husband's funeral pyre, were seen as a representation of what these religions were, fully confirming to the British back home that India was a place very much in need of a good Christian cleansing. Combined with new technology, especially the railways being built up and down the country, it meant the Indians began to feel that their traditional way of life was in serious threat of being wiped out. The people who had started as employers, mutually benefiting from the trade produced by the land, had transformed into cruel, uncaring masters, and steadily the Indian population grew more and more frustrated.

The seed of rebellion was already sown in the minds of many of India's most powerful men. Rumours of fatal British errors and even possible defeat during the Crimean War slowly fed into

The spread of rebellion

Although the Mutiny was initially self-contained, it steadily spread across other Company-controlled regions



Sepoys rebel in Meerut

May 1857

After Meerut sepoys who refuse to use the controversial cartridges are imprisoned, their comrades unite and revolt against the British. The prisoners are freed by force and in the resulting violence, 50 European men, women and children, along with 50 Indian civilians, are killed.

Siege of Lucknow

30 May – 27 November 1857

The British manage to fortify their position inside a residency compound as rebellion erupts in the city. After being pounded by sepoy artillery, the British forces fall heavily, but they manage to hold the compound until October, when a relief column appears and evacuates the enclave.

Siege of Delhi

8 June – 21 September 1857

With no British units stationed there, Meerut rebels march to Delhi and unite with the emperor, Bahadur Shah II. The Company army follows and sets up base to the north of the city. The rebels appear to have the upper hand, but the British manage to storm the city with much looting and killing.

Siege of Cawnpore

5-25 June 1857

The European entrenchment of Cawnpore struggles to cope when it is besieged by sepoys, so when an offer of safe passage out of the city is made, the citizens quickly accept. However, shooting breaks out during the evacuation and it becomes a massacre.

the Indian consciousness, and secret Indian press leaflets against British rule began to be distributed. Whispers of British defeat overseas and that the Russians were heading for India spread among both Hindu and Muslim populations also circulated. The British had attempted to present themselves as rulers, frequently displaying their wealth and superiority, but in reality, this was a well-constructed lie, and the Indian people were beginning to see through it. The real power of the East India Company lay not in its large houses, but its native troops. The Indian army was ten times the size of the British army in India, and their loyalty was the backbone of the Company's power. The kindling for revolution was all in place; all it needed was a single spark to initiate it.

This spark came in the form of a gun cartridge. The cartridges for the new rifles introduced by the Company were rumoured to be coated in a combination of pork and beef fat, and the deeply religious soldiers were mortified. This typified everything the Indian people feared: the methodical elimination of their beliefs and traditions. In Meerut, 85 troopers refused to use the cartridges and were promptly stripped of their uniforms and thrown into prison, sentenced to ten years' hard labour. To the Company's officers, such actions were akin to mutiny; unfortunately for them, that is exactly what they had just inspired. The very next day, Indian troops stormed the prison to release their captive comrades. Spurred on by the fires of injustice and rebellion, they stormed the British quarters, torching every building and slaughtering men, women and children.

The East India Company and Britain very much hoped this was a single freak event, the result of a strict officer laying it on too thick, but soon they were to discover that the 'Mutiny', as it began to be known, was anything but an isolated incident. On 5 June 1857 in Cawnpore, rebel Indian troops turned on their superiors and any men who remained loyal to the British. As they set fire to the European quarters, the people fled to a rundown military entrenchment, hastily fortifying it against the approaching forces. Nana Sahib, an Indian aristocrat who had previously vowed to help the British, took charge of the rebels and encircled the barracks with a force of some 12-15,000 soldiers.

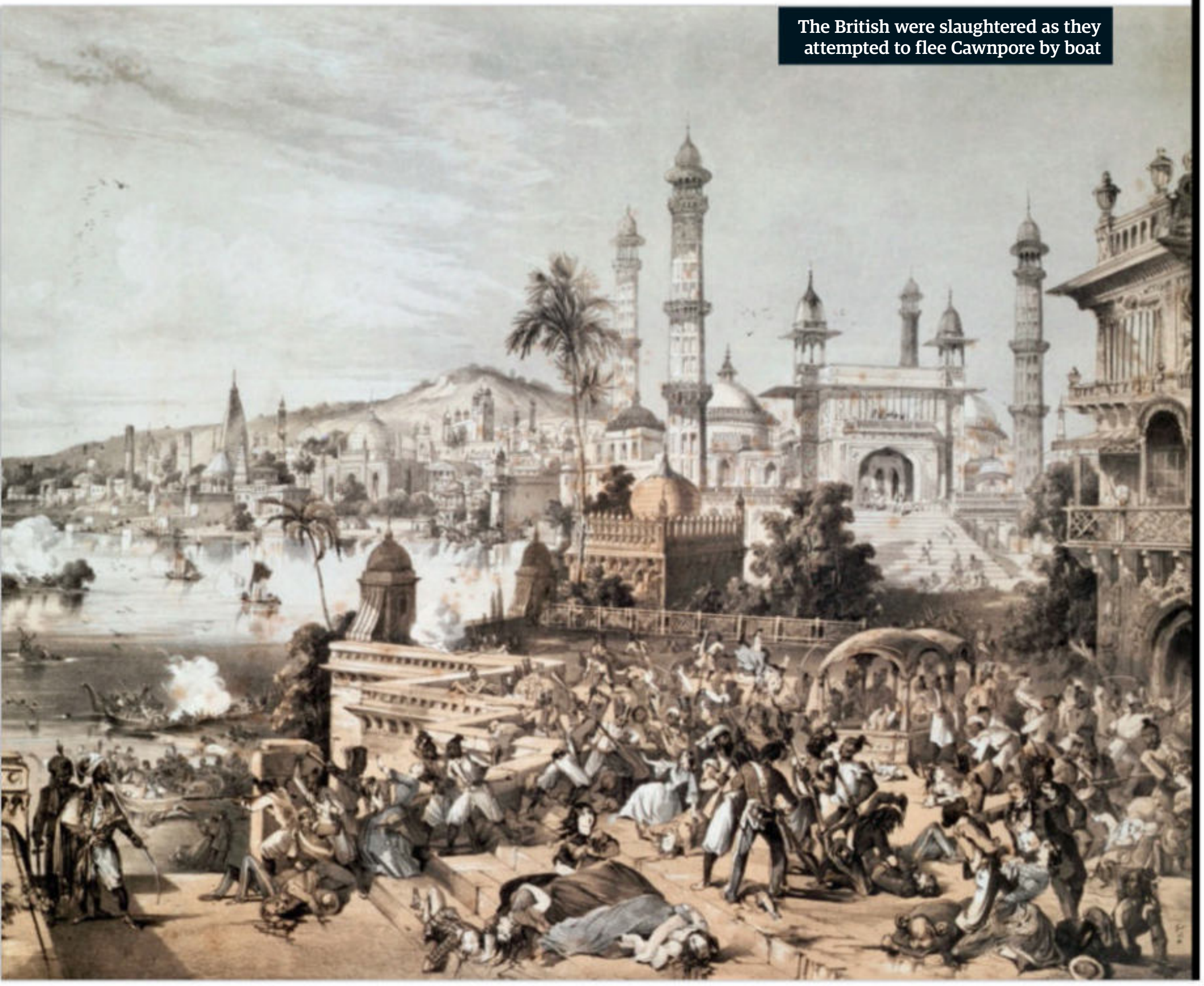
"They slashed through the men, women and children, dyeing the sea red with their blood. Over 500 people died"

Despite the huge number of Indian rebels pummelling the British fortress with cannons and musket fire, the men, women and children inside managed to hold out. However, conditions became horrific; they were rapidly running out of food and water, disease was rampant and some women even gave birth amid the madness. The hospital building was set alight and all the medical supplies perished. The situation was becoming desperate.

When, on 25 June, Nana Sahib offered safe passage to Allahabad for the British if they left peacefully, they had no option but to accept. A fleet of boats was assembled on the shore and on the morning of 27 June, the British left their entrenchment to climb on board and escape their hellish experience. However, madness and panic broke out out of nowhere. A shot was fired and the Indian boatmen leapt from the boats and swam to the bank; boats were suddenly set alight and rebel forces began attacking the terrified British. They slashed through the men, women and children, dyeing the sea red with their blood. Over 500 people died, just over 100 were captured and only a handful managed to escape with their lives.

Britain had received news of the situation and had sent some 30,000 troops, but the journey was long and it would take them months to provide aid. However, hope was now on the way from other parts of India. When Nana Sahib learnt of the advancing British troops, he assembled his forces to face them. In an ironic twist of fate, it was the new rifles, which had begun the entire conflict, that aided the British as they were able to pick the rebels off at long range. The Indians that remained fled back to the city to warn of the British advance.

With some 180 British women and children now confined in a single building, it was decided that they had to be killed before the British army arrived. But the rebels were reluctant. Killing armed men was one thing, but women and children sobbing for mercy? The rebel sepoys refused and were scolded for their cowardice. With no soldiers willing to perform the act, butchers were recruited to do the job. The butchers used cleavers



The British were slaughtered as they attempted to flee Cawnpore by boat

What sparked the Indian Mutiny?

The wrong cartridges

When the East India Company decided to replace the smooth bore muskets it had used for years with Enfield Rifles, the latter came with sleek new cartridges. In order to use one, the shooter had to bite the end to expose the powder before loading it. However, the grease used to protect the cartridges was rumoured to be made from beef and pork fat. Whether true or not, this was horrifying to the Hindu and Muslim soldiers and many refused to use the cartridges. To the British, this was mutiny.

Taxation

Increased taxes are never popular, and the East India Company gradually increased taxes over its territory. The policy of taxing land belonging to temples and mosques was deeply unpopular. Farmers also faced high taxes on their land, and the mere arrival of British officials, who would measure the land to calculate the amount of tax, could spark riots. As the Mutiny raged, one of the central targets, especially for the peasantry, was the offices used for tax and rent collection.

Bad treatment of soldiers

At first, the officers of the East India Company were well-liked by their Indian soldiers. They made efforts to learn the language, marry Indian women and even fought side-by-side with their men. However, as new officers filled the ranks, this changed. A divide formed between the British and Indians, there was a language barrier, harsher punishments were enforced, the high ranks of the army were closed to Indians and they were paid less than their British counterparts. What initially began as a loyal relationship turned into one, virtually, of master and slave.

Spread of Christianity

There was a belief among the Indian populace that the British government's main goal was to convert them to Christianity. Initially the East India Company had focused almost entirely on trade, but in the 19th Century this changed. More and more Christian missionaries poured into the region. Efforts to reduce religious practices, such as sati ('widow burning') were seen as righteous by the missionaries, but only served as confirmation of religious intolerance to the suspicious locals. It was these beliefs of religious persecution that would unite the Muslims and Hindus against a common foe.

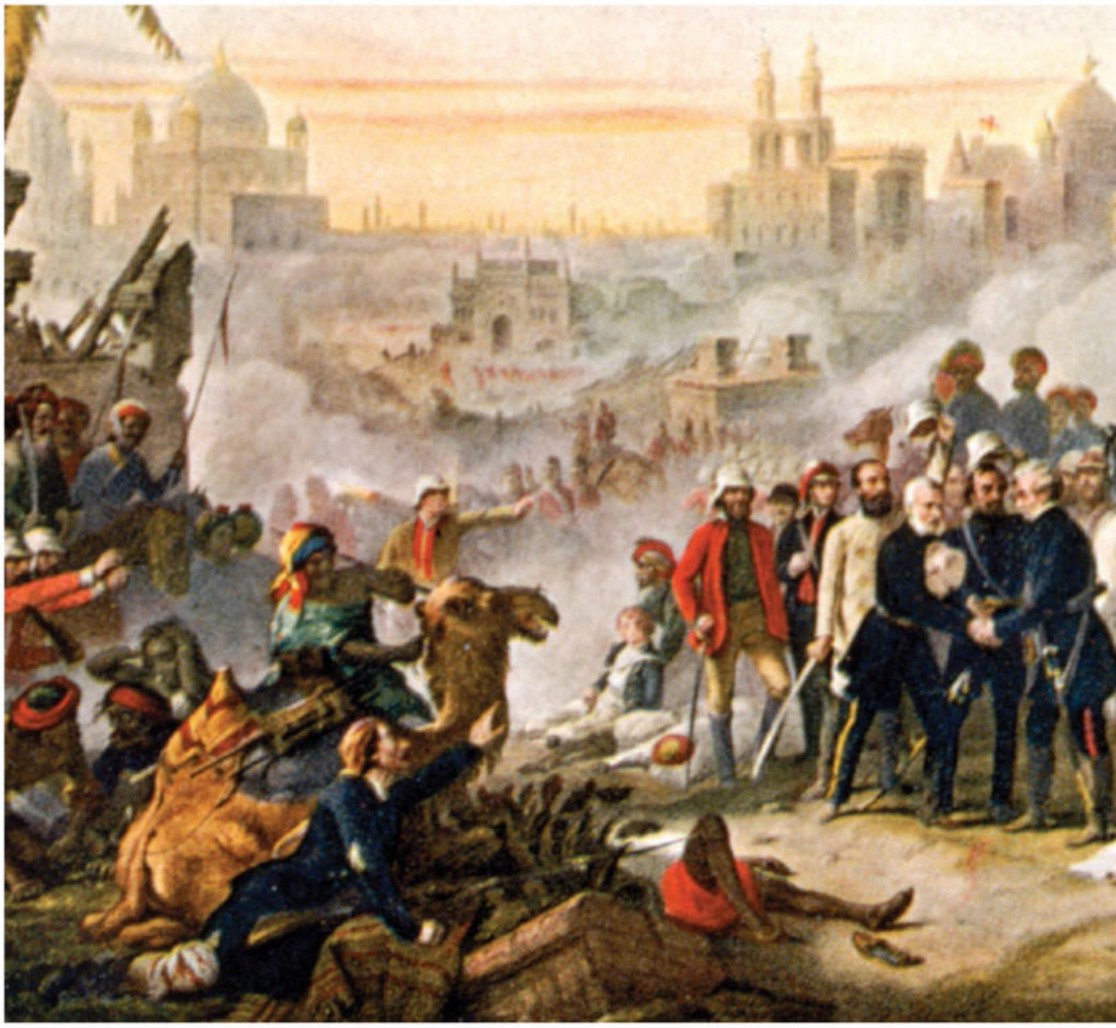
Annexations

The Doctrine of Lapse was a policy that permitted the East India Company to take over any principality where the ruler had died without any natural or 'competent' heirs. This resulted in state after state being annexed, ignoring the ancient rights of adopted heirs. Rani Lakshmi and Nana Sahib were just two victims of the Doctrine who eventually rose up with their own forces in revenge.

to slaughter the people inside, and the next day their mutilated remains were tossed down a well. Several people were found alive, hiding under the corpses, but they were thrown into the well too. By the time the relief force arrived, it was too late. One of the men who stumbled upon the horror described the sight as 'the most awful the eye could behold.'

When news of the massacre reached Britain, the effect was devastating. Horror and outrage gripped the nation. Victoria had thoroughly instilled in her people the belief that women and children, above all else, must be cherished and held sacred. By slaughtering the women and children, the Indian rebels had attacked the very notion of Britishness. Victoria was shocked and appalled by the events, writing, "my heart bleeds for the horrors that have been committed by people once so gentle on my poor women and innocent little children… It haunts me day and night."

With the myth of imperial power shaken in India, the officers of the East India Company were keen to reinforce it. As British reinforcements finally made it to the country, Nana Sahib had vanished, so they took their outrage out on any Indian forces they could find. Captured mutineers suffered a variety of horrendous punishments – some were force-fed beef and pork, others were tied to guns and blown to smithereens; some were told to run, only to be shot dead as they tried to flee. One British commander alone executed some 6,000 men. Any chance of a civilised co-existence between India and the East India Company was smashed to pieces and the Company's grip on power was loosening by the day.



Rani of Jhansi

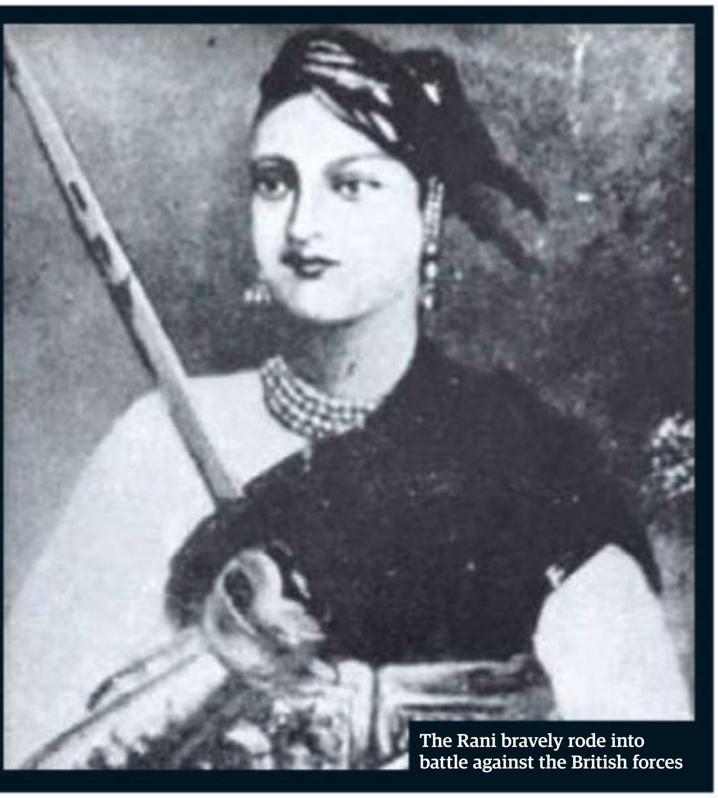
A Indian Joan of Arc, she became a symbol and martyr of the Mutiny

Born in 1828 with the birth name Lakshmibai, Rani of Jhansi was the daughter of a man who served Bithur court of the Maratha Peshwa, and she was raised as his daughter. A clever and athletic girl, she received training in horse riding, archery and swordsmanship. Lakshmibai married the aging Maharaja of Jhansi in 1842, but by 1853 he was dead. Instead of honouring the rights of his recently adopted son, the British East India Company used the Doctrine of Lapse policy to seize the Jhansi state and left the Rani with orders to vacate her palace.

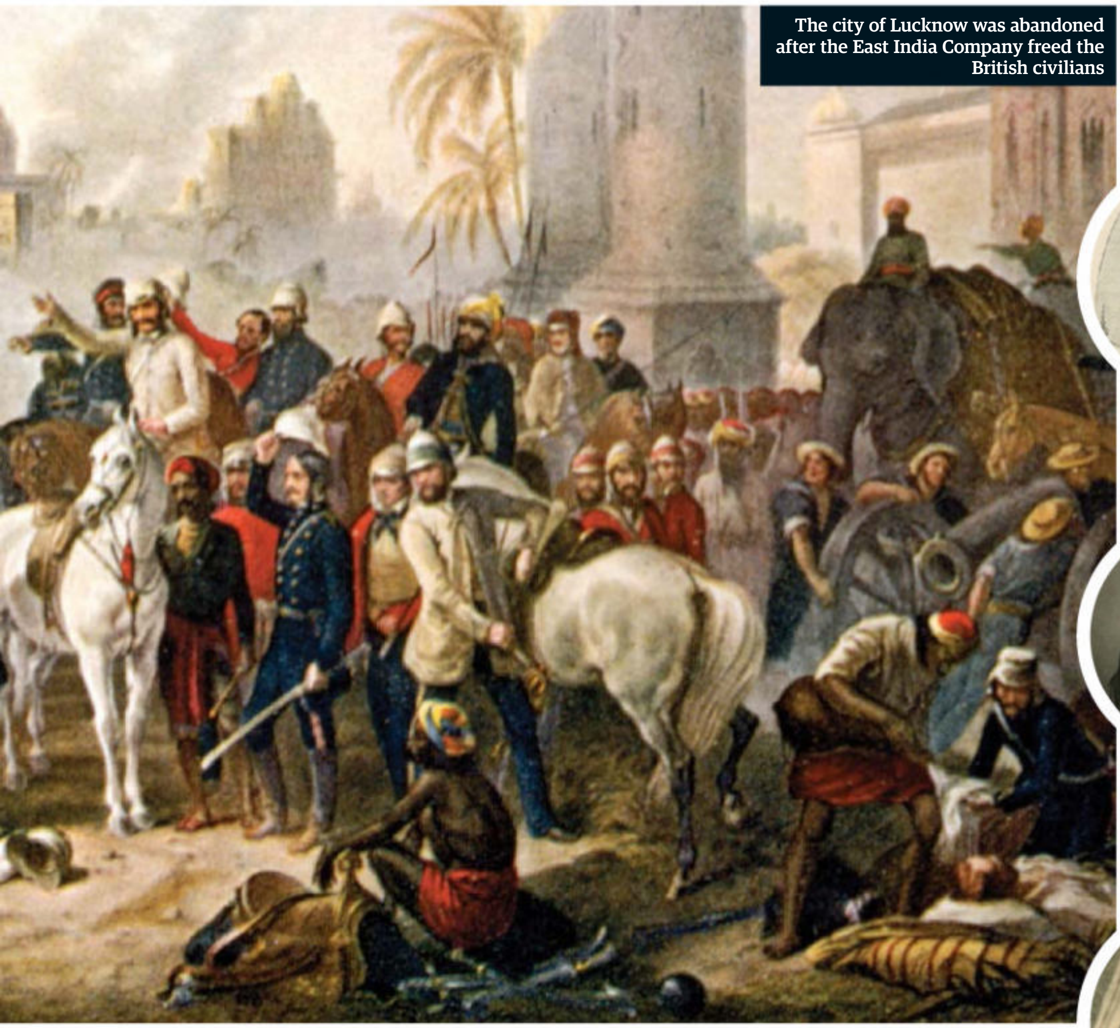
When the Indian Mutiny broke out, opposition to British rule soon focused on the recently annexed Jhansi. At first, the Rani was reluctant to raise the flag. However, in 1857, men of the Bengal Native Infantry massacred all the British men, women and children hiding in the Jhansi fort – for which the British blamed the Rani. Now solely in charge of the defence of Jhansi, she organised food provisions and set up a foundry to produce ammunition.

When Major-General Sir Hugh Rose, leading the British forces, arrived in the city he found a well-defended fort and ordered they surrender or the city would be destroyed. Lakshmibai replied, "We fight for independence. In the words of Lord Krishna, we will if we are victorious, enjoy the fruits of victory, if defeated and killed on the field of battle, we shall surely earn eternal glory and salvation." After holding out for several days, the fort was stormed by the British and looted. Riding with her son on her back, Lakshmibai barely escaped with her life. The Rani combined her army with other rebel forces and defeated the army of the Maharaja of Gwalior, who quickly defected to the Rani's side. However, Rose was close behind and on 17 June he launched a surprise attack at Gwalior. As her army fled, Lakshmibai donned a soldier's uniform and rode into battle. When unhorsed, she continued to fight until she was fatally shot.

The Rani's bravery and sacrifice inspired not only her countrymen, she was also commended by her enemies. She was later upheld as a forerunner of the independence movement which would grip India in the 1940s and result in the end of British rule.



The Rani bravely rode into battle against the British forces



The city of Lucknow was abandoned after the East India Company freed the British civilians

These horrific actions did not go unnoticed back in Britain. The entire country had been told repeatedly that they were the enlightened, civilised nation, bringing morality to savage lands – but these were not reasonable actions. Even Queen Victoria herself was outraged by the brutality of the British forces against old men, women and children. She argued that they should show moderation, "for then how can we expect any respect or esteem for us in the future?" Calling their actions "shameful", she asked for "pardon for our sins" and the "restoration of tranquillity".

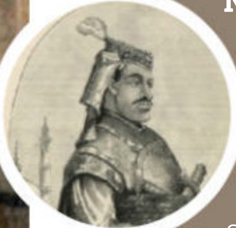
Her nation agreed. The situation in India had completely spiralled out of control. If things continued this way, Britain risked losing not only thousands of lives, but control of the country for good. In 1858 the British government passed the Government of India Act, abolishing the East India Company and transferring direct rule of India to the British Crown.

The infamous Doctrine of Lapse policy, which denied adopted children of Indian princes their inheritance, was abolished, as were social measures deemed offensive to the Indian people's religious beliefs. Victoria was eager that the document "breathe feelings of generosity, benevolence and religious feeling." When the proclamation was finally drawn up, she was pleased with it, proclaiming it to be "the beginning of a new era" that would "draw a veil over the sad and bloody past."

Over the next 30 years, British rule would oversee India's rapid economic growth, as well as a host of technological developments – most notably roads, the railway network and the telegraph. These advances allowed places like Calcutta, Madras and Bombay to grow into major cities.

British rule of this powerful and prosperous nation solidified the Empire's position in the world. Victoria herself, ever wary of the horrors that had unfolded in the years of rebellion, was eager to keep ties and commitment to India as visual as possible. She created an Indian order of knighthood to strengthen the bonds with the loyal Indian princes, and from then on until her death kept Indian attendants by her side. When she was finally named India's Empress, grand statues of Victoria were shipped out to India to be displayed in the highest honour, and by the time of her death, India had turned into the biggest, richest and most significant colony in the empire – or, as Victoria put it, the jewel in her crown.

Major players in the rebellion



Nana Sahib

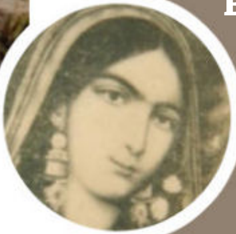
1824-1857 (disappeared)

Sahib was the adopted son of an exiled prince. When the East India Company rejected his claim to his father's pension, for which he was supposed to be entitled, Sahib turned on the British and went on to lead the Cawnpore rebellion. He mysteriously disappeared after the capture of Cawnpore, but was hailed as a freedom fighter in India.

Charles Canning

1812-1862

Serving as Governor-General of India during the rebellion, Canning's calm approach led many to believe he did not understand the gravity of the situation. However, Canning saw British India safely through the storm and showed restraint when punishing the rebels, leading to greater unity between the two nations. He earned the nickname 'Clemency Canning' (derisively from the British) for his leniency.



Begum Hazrat Mahal

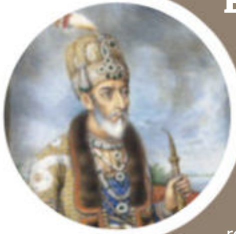
1820-1879

The first wife of the ruler of the state of Awadh, when the kingdom was annexed in 1856 and her husband was exiled, she took control of the state. When the rebellion broke out, she led a band of supporters and they seized control of Lucknow. When the siege was broken, however, she was forced to retreat to Nepal.

Colin Campbell

1792-1863

After serving in several conflicts, including the Crimean and First Opium War, Campbell was appointed as commander-in-chief of India. He quickly relieved and evacuated the British people trapped in Lucknow, and then defeated the rebel leader Tatya Tope at the Second Battle of Cawnpore.



Bahadur Shah II

1775-1862

Bahadur succeeded his father in 1837 to become the last Mughal emperor, albeit over a much reduced empire. When rebellion broke out, he was viewed by many rebels as the emperor of India due to his neutral views on religion. He later sought refuge to escape the British, but was captured, exiled and his sons were killed.

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Pax Britannica

With a foreign policy of 'splendid isolation' clashing with imperial ambitions, a period celebrated for its relative peace may have been all but peaceful

The year is 1815 and the future Queen Victoria is still four years from being born. With the French succumbing to British forces, Napoleon's defeat at the Battle of Waterloo has just marked the triumphant conclusion of the 13-year long Napoleonic Wars. Enter a century of relative peace that would be enjoyed throughout Europe and the world, thanks to the overwhelming dominance shown by the British Empire. No one nation - besides perhaps Russia - was prepared to challenge this unrivalled supremacy, leaving the Empire to fill the power vacuum by assuming the role of global policeman.

It was to be the start of Britain's imperial century, and the moniker 'Pax Britannica' would later be used to describe the lull as the dust settled on the Empire's vast influence. From the Latin meaning 'British peace', the term was not coined until 1893 when it was first used by Joseph Chamberlain. In time it would come to be imbued with an additional meaning, symbolising the strength of the British Empire as a whole. By the close of the 19th Century, it would be a phrase recognised by every man, women and child in Britain who was thrilled to belong to such a strong and powerful nation.

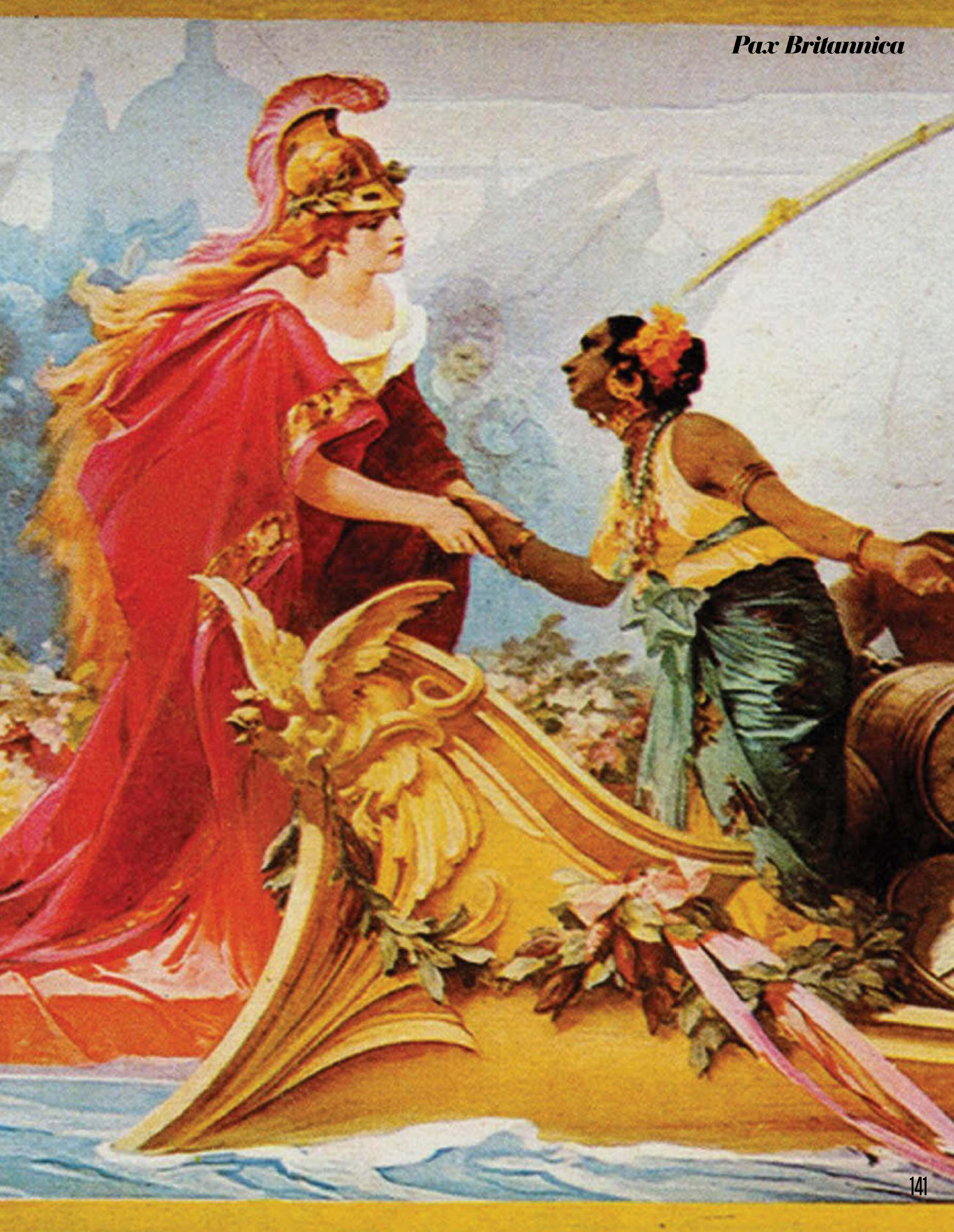
To the average British man or woman weaving through the streets of London, going about their daily toils, it must have seemed like the world was at their nation's fingertips. But to accept Pax Britannica as an accurate portrayal of this era is to give credence to an imperialist propagandist's sound bite. In reality, this period was not nearly as peaceful as it seemed.

> During Victoria's reign, a quarter of the world's population looked to the queen as their leader

Marred by rebellion and conflict, the British armed forces suffered tremendous losses during this time. It is said that during the imperial century there were merely six standalone years in which there were no wars or conflicts, and that every other year during Queen Victoria's reign British forces were, to one extent or another, engaged in some form of combat. On home turf it may have seemed a settled time - for no wars took place on European soil itself - but for the armed forces it was a very different story.

The idea that there was ever any peace during the Pax was an illusion, perhaps a yarn spun in moral justification for the nation's project to colonise the world. It also served as a rather powerful tool for commanding officers attempting to enforce British law and justice oversees; it was far easier to declare that the violence and uses of force were 'for peace' than admitting they were for personal gain. And these ventures did of course produce extensive benefits for the nation's gathering power; it is no happy coincidence that these 'peace-seeking' ventures spurred on the free trade movement that would solidify Britain's healthy economic standpoint throughout the 19th Century. What's more, the Empire was not simply gaining new territories by the power of its military, it was keeping them too - an odd notion of peace by anyone's standards.

There are several interesting factors to consider regarding the superiority of the British armed forces come the start of the Victorian era. Firstly, the allied victory over Napoleon in 1815 had several repercussions, none of which anyone in the British



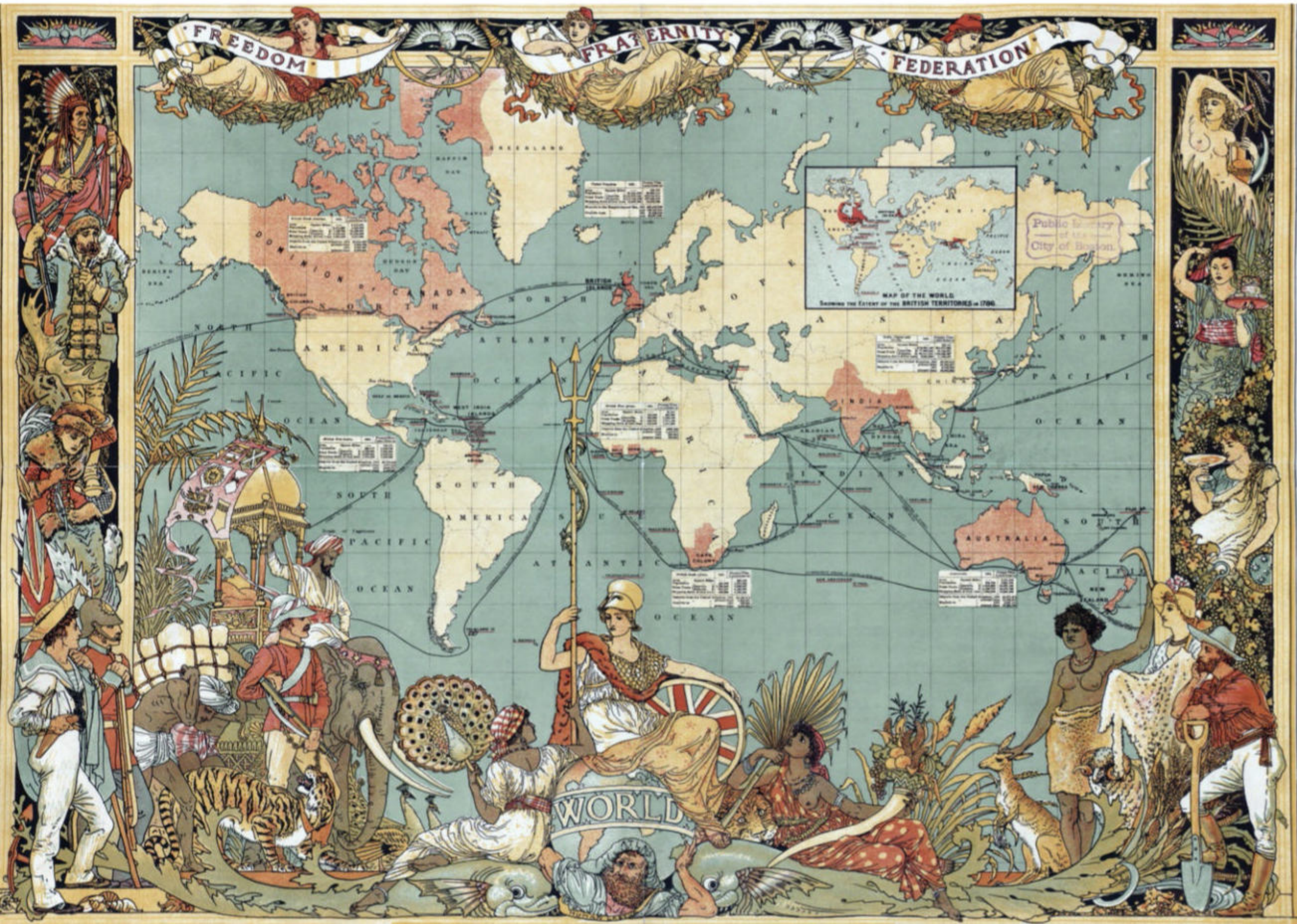
hierarchy could have accounted for. Naturally, to be regarded as the most powerful armed forces in the world is a claim that every army strives for, but this forced Britain to question of what more could be done to improve its efficiency and effectiveness. How could they become better, when they were already the best? Complacency set in. This was despite retrospective claims by historians that the global dominance displayed by Britain came about simply due to the weakness of its rivals rather than the strength and capability of its own forces.

To add to this, the hero and victor of the Battle of Waterloo, Field Marshal Arthur Wellesley, the First Duke of Wellington, was held in such high esteem after Napoleon's defeat that there wasn't a soul in his army who would dare question his authority. His decisions on military matters went unchallenged from the end of the Napoleonic War until his death in 1852, meaning that the status quo prevailed and little else was done to train and improve the nation's forces.

In 1890, British Army General Viscount Garnet J. Wolseley famously declared that it was "the varied experience, and frequent practice in war which makes the British Army what I believe them to be - the best in the world." However, he was speaking at the tail end of the century, when Britain was constantly engaged in military warfare. Several decades before, the armed forces were considerably less practised, with a period of two decades after the Napoleonic wars when they were virtually twiddling their thumbs. With no wars to burden them, the British government was far more concerned with domestic issues such as inflation, unemployment and democratisation. The British Army were frequently called upon to calm domestic disturbances, acting more as a local police force than a global one. Soldiers and commanders began to rest on their laurels, with their reputation as the best army on earth giving them justification for basking in their arrogance.

With no one to challenge Wolseley's authority, and with little opportunity arising to practise the skills and tactics of warfare, the standards in the British military began to fall drastically. It was a real shock to the system when the Crimean War broke out in 1853, and it became evident that almost a whole new generation of recruits had failed to develop the skills required to protect and defend a nation. And it was in the name of defence that Britain intervened in this conflict, despite a prevailing foreign policy of 'splendid isolation'. Motivated to maintain stability for Britain and keep the peace around the world, Britain stepped in to suppress the conflict, joining an alliance with France, Sardinia and the Ottoman Empire against

Three members of the 95th Regiment (Derbyshire), wearing their packs and equipment. The 95th Regiment won eight Victoria Cross awards in the Crimean War


FREEDOM
FRATERNITY
FEDERATION
GREENLAND
DOMINION OF CANADA
NORTH AMERICA
NORTH PACIFIC OCEAN
NORTH ATLANTIC OCEAN
BRITISH ISLES
EUROPE
ASIA
INDIA
SOUTH AMERICA
SOUTH PACIFIC OCEAN
SOUTH ATLANTIC OCEAN
INDIAN OCEAN
AUSTRALIA
NEW ZEALAND
NORTH PACIFIC OCEAN
MAP OF THE WORLD
SHOWING THE EXTENT OF THE BRITISH TERRITORIES IN 1786
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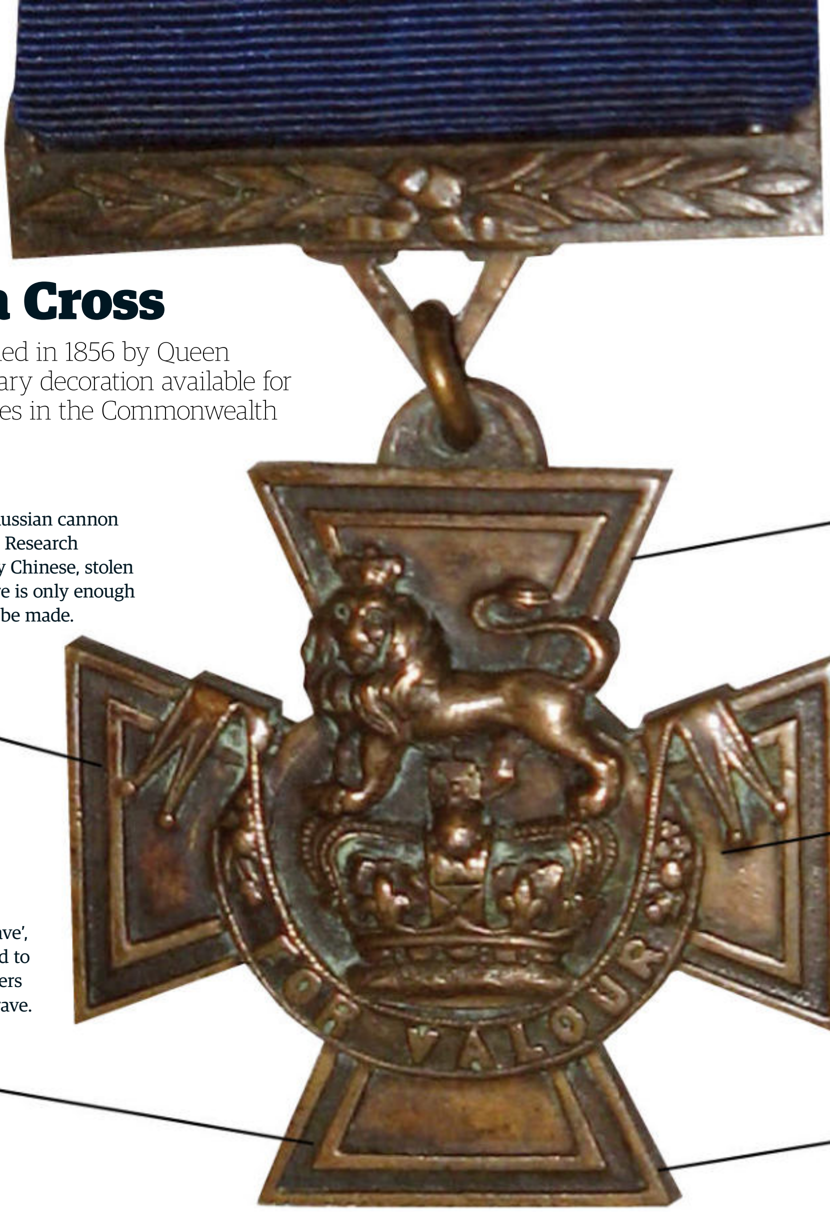
WORLD

The Victoria Cross

The Victoria Cross, established in 1856 by Queen Victoria, is the highest military decoration available for members of the armed forces in the Commonwealth



Metal
The Victoria Cross is made from a Russian cannon captured in the Siege of Sevastopol. Research discovered this cannon was actually Chinese, stolen by the Russians in 1855. Today, there is only enough metal left for another 80 medals to be made.

'For Valour'
The inscription on the cross was originally going to read 'For The Brave', but Queen Victoria had this changed to 'For Valour', as she thought all soldiers serving in her army were already brave.

Awards
It has been awarded 1,358 times, and only three of these recipients have received it twice. Though women were made eligible to win the VC in 1921, none have yet been awarded it.

Animal heros
A Victoria Cross for animals was created in 1943 called the 'Dickin Medal', to honour the work of animals in war. Between 1943-49, it was awarded to 32 pigeons, 18 dogs, three horses and one cat.

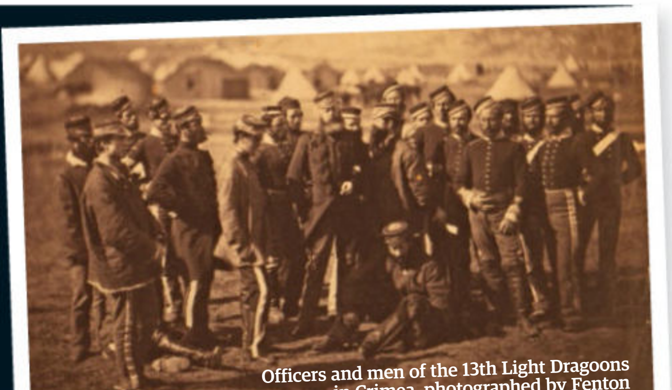
Youngest winners
Thomas Flinn and Andrew Fitzgibbon are the youngest men to be awarded the Victoria Cross, both aged 15 years and 3 months at the time. The third youngest was Jack Cornwell, awarded a posthumous VC aged 16 in 1916.

The first war photographer, Roger Fenton

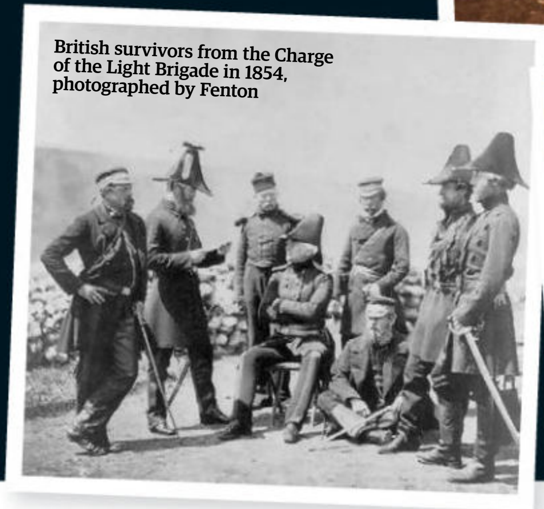
Roger Fenton was one of the most famous and influential photographers of the 19th Century, and was the original founder of the Royal Photographic Society. He was known for his technical skill, and his most famous photographs were captured in the midst of the Crimean War. But engaging in war photography in the 19th Century was by no means an easy feat – he had to travel with big equipment like wooden cameras and boxes of glass plates, and so he moved across the battlefield in a large wooden photographic van that was pulled by horses.

He took more than 300 photographs during the war, capturing everything from everyday camp life to portraits of commanders. But despite this, he wasn't actually able to get any shots of fighting. And so, even though the British public could finally see images from the war, they were specially selected photos; there were no shots of death, for instance. The government was hoping that Fenton's photos would help to contradict the negative reports that were coming back about the disorganised British military.

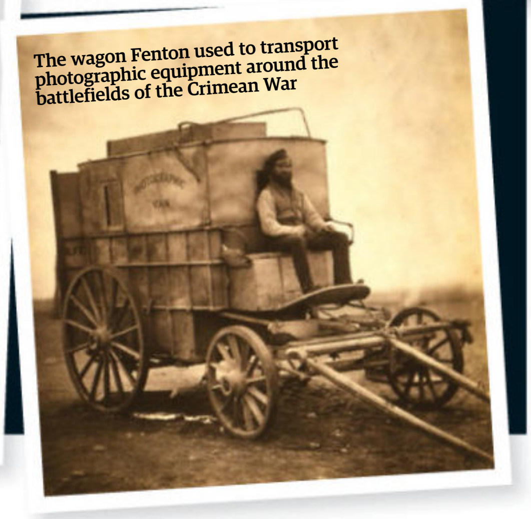
Fenton's most famous photograph from the Crimean War was *Valley Of The Shadow Of Death*, a desolate landscape absent from life where the only distinguishable features are cannonballs. In his notes, Fenton wrote that he'd wanted to get closer to the site, but danger forced him to retreat further back to take the photograph. There's lots of debate about how 'true' this photo actually is though, and whether the cannonballs were there beforehand or whether Fenton strategically placed them in shot to give it a more powerful message to Victorian audiences at home. Either way, Fenton's selectively captured photos were the beginnings of specially staged war images that have shaped the way conflict is portrayed in the media today.



Officers and men of the 13th Light Dragoons in Crimea, photographed by Fenton



British survivors from the Charge of the Light Brigade in 1854, photographed by Fenton



The wagon Fenton used to transport photographic equipment around the battlefields of the Crimean War

Florence Nightingale, 1820-1910

Often described as the 'lady with the lamp', Florence Nightingale's efforts to heal the sick and wounded on the battlefield helped shape the nature of modern healthcare and turned nursing into a respected profession in the 19th Century.

Born in Florence
Named after the city of her birth, Florence is born to a rich, upper-class family in Italy. **1820**

The calling
At her home in Embley Park, Hampshire, Florence experiences what she regards as 'calls from God', igniting a desire to live a life of service. **1837**

Educating herself
After her parents learn, to their disappointment, that she wants to become a nurse, Florence becomes a self-taught expert on hospitals and sanitisation. **1845**

Marriage proposal
Richard Monckton Milnes proposes to Florence. It takes seven years for her to decide, and she eventually refuses his offer. **1847**

First pamphlet
Florence visits the Insitution of Kaiserswerth on the Rhine, and at the request of the Reverend Pastor, she writes a pamphlet on the institution but declines credit for it. **1850**

Improving patient care
Florence takes up her first position as superintendent at the Institute of Care of Sick Gentlewoman, and in her short time there helps improve conditions and patient care. **1853**

Called to Crimea
When the horrors of the Crimean War are reported to the public, the secretary of state asks Florence to attend wounded soldiers. She assembles 38 volunteer nurses and heads to Crimea. **1854**

Defining moment

'Lady with the lamp' 1855

Florence works 20-hour days, improving sanitary conditions and helping reduce soldier mortality rates. Carrying a lamp at night as she tends to wounds earns her the nickname 'the lady with the lamp'.

War takes its toll
Florence is struck with illness and post-traumatic stress disorder, which leaves her bedridden. She does not appear in public again. **1857**

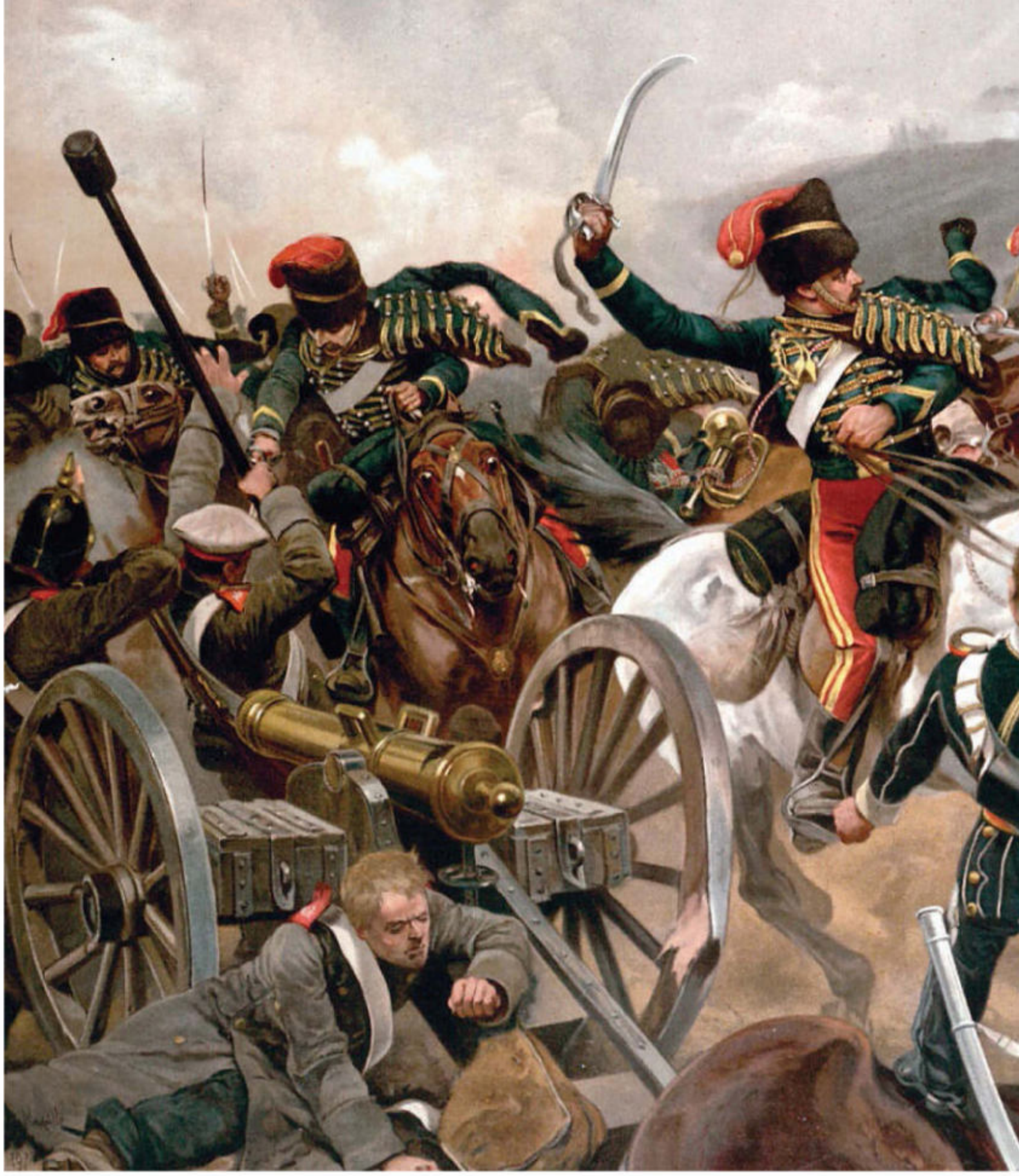
Nursing school set up
After returning from war a heroine in 1856, the Nightingale Fund is set up and the public raise £45,000. With this money, the Nightingale Training School in London is established to train nurses. **1860**

Defining moment

Service rewarded 1907

King Edward VII presents Florence the Order of Merit. It is the first time that the Order was given to a woman.

Florence dies
Aged 90, Florence dies in her sleep. She is denied a burial at Westminster Abbey and is buried in the family grave at East Wellow. **1910**

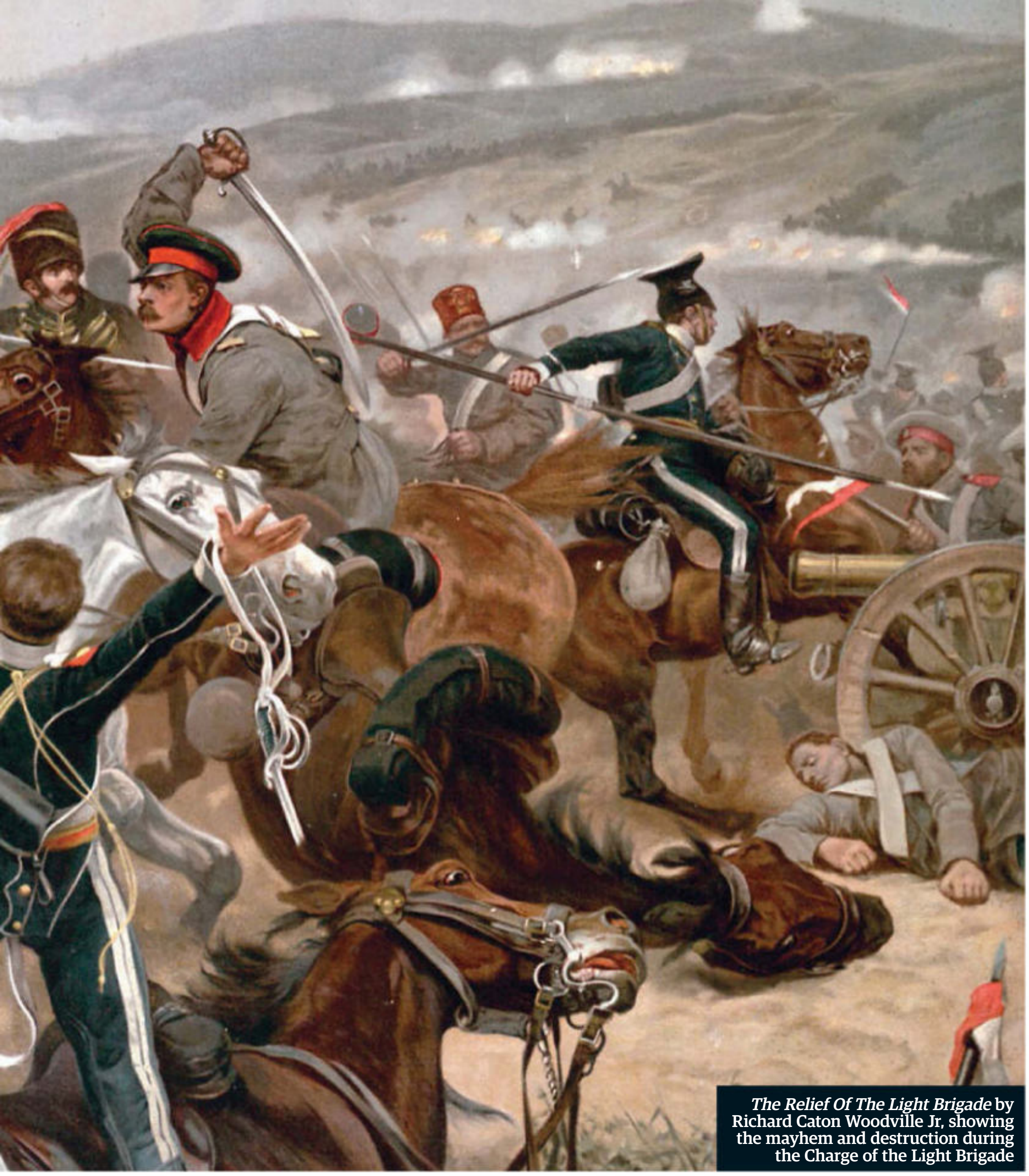


Russia. The only force at the time powerful enough to challenge Britain's colonial monopoly, it was also within Britain's interests to neutralise the threat from Russia's imperial ambitions.

At the end of the Napoleonic wars, the European states had gathered in Vienna to sign a treaty agreeing to restore the European state system, which was installed to bring peace by upholding stable monarchies. The one downfall of the treaty was the weakness of the Ottoman Empire. Russia had been expanding south for over a hundred years, and was eager to seize the Black Sea ports on the Crimean Peninsula, which, unlike their own sea ports, did not freeze over. When the opportunity arose, Russia moved into the Danubian Principalities, now modern Romania, in order to put pressure on the Constantinople, the then-capital of the Ottoman Empire. With France, Britain and Austria abstaining in an attempt to seek a more diplomatic solution, the Ottoman Empire had no way of retaliating but to formally declare war on Russia. With war now afoot, Britain reluctantly joined forces with the Ottoman Empire in 1854, fearing that Russia may well continue to push down further south through Afghanistan into India – the most important and most profitable of all British colonies.

When the joint allied forces of Britain, France and the Ottoman Empire, some 60,000 strong, landed in Sevastopol in Crimea to begin their campaign against Russia. An Irish news reporter for *The Times* noted how it appeared the forces weren't as joined up as originally planned. 'The French, though they had tents, had no cavalry; the Turks had neither cavalry nor food, the British had cavalry, but they had neither tents nor transport, nor ambulances nor lifters." This initial lack of communication between forces was a disheartening start to what would continue to be a clumsy and sloppy war effort riddled with small errors that would have catastrophic consequences.

One of the first major conflicts since the advent of modern technologies such as rail transport and telegraphs, it is ironic that miscommunication hindered – rather than helped – allied war efforts. In the infamous Charge of the Light Brigade during the Battle of Balaclava, a miscommunication of orders meant that Lord Raglan failed to send the light brigade to pursue Russian artillery as originally planned, a task well-suited to cavalry who had light armour and were able to reach high speeds. Instead, they were sent headfirst into the frontline, an open valley aptly named the 'Valley of Death' by poet Alfred Lord Tennyson. They were



The Relief Of The Light Brigade by Richard Caton Woodville Jr, showing the mayhem and destruction during the Charge of the Light Brigade

surrounded on three sides by at least 20 heavily armed Russian battalions. They were being sent to their deaths, and everyone in the field knew it. Displaying extraordinary bravery and valour despite the inevitability of their demise, the light brigade did scatter some of the gunners before being badly mauled and forced to retreat.

The mistake led to high British casualties and no strategic gains, with 118 men killed, 127 wounded and 60 taken prisoner. The events were described by French Marshal Pierre Bosquet, who declared, "It is magnificent, but it is not war. It is madness." Russian commanders, confused by the miscalculation of their enemy, initially thought that the British must have been drunk to have performed such a suicidal charge, but unfortunately that was not the case. The charge itself did gain British cavalry men a fearless and courageous reputation amongst their peers, but less could be said for the British commanders who headed up the charge, none of whom took blame for the accident because the initial orders had been so unclear.

However the greatest flaw of all took place not on the battlefield, but in the hospitals. Of the 21,000 British soldiers who fought in the Crimean War, only 2,755 were killed in active service; 2,019 died later from wounds incurred in battle, while a staggering 16,323 died of diseases spread quickly due to appalling living conditions. Rations were also running alarmingly low, with many soldiers living off nothing but a few biscuits for days. In 1854, Colonel Bell's men received no rations at all, and in his diary he noted, "I kicked up dust. At the close of day the Commissary did serve out a small portion of fresh meat, but it was too late. There were no fires or means of cooking!" By the time

Reporting the war

With the inventions of the telegraph and the photograph in the mid-19th Century, accounts from the battlefield were reported in hours rather than weeks. The public no longer only heard tales of heroic dukes returning from war, they were told of the ordinary men trying to get through the horrors of the frontline, and they read of the clumsy mistakes made by the British forces. As a result, it skewed public opinion of war, particularly how it was managed. Reports that were normally crafted over weeks to sing praises of the commanding officers were a thing of the past. War was no longer regarded as an exciting and noble conquest, but a gruelling and uncoordinated struggle.

The Charge of the Light Brigade

The Charge of the Light Brigade, though bravely performed, was disastrous in its consequences, and was executed on the misunderstanding of an order from the commander-in-chief. "There is no concealing the thing – the Light Brigade was greatly damaged, and for nothing; for though we killed the gunners and the horses of nine 12-pounders, we could not bring them away […] It is being said that the high death toll is not being brought on by battle wounds, but disease and starvation, and that rations deployed are not enough to keep a man fit and healthy […] Those who were fortunately wounded and removed to Scutari – bad as they then thought their fate – will perhaps live to wear their medal, and bless the day when they were deprived of the power of campaigning it further in the Crimea."

– Letter from a survivor of the Charge, printed in the *Leeds Intelligencer*

The Charge Of The Light Brigade
By Alfred Lord Tennyson

Half a league, half a league,
Half a league onward,
All in the valley of Death
   Rode the six hundred.
"Forward, the Light Brigade!
"Charge for the guns!" he said:
Into the valley of Death
   Rode the six hundred.

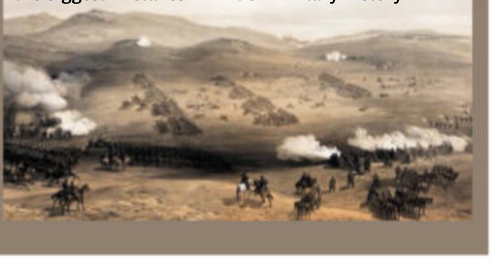
"Forward, the Light Brigade!"
Was there a man dismay'd?
Not tho' the soldier knew
   Someone had blunder'd.
Theirs not to make reply,
Theirs not to reason why,
Theirs but to do and die:
Into the valley of Death
   Rode the six hundred.

When forces collide

"It was very rare that stubborn and unshaken infantry would come face to face with equally stubborn and unshaken cavalry. Usually, either the infantry turned and ran and were cut down in flight by the men on horseback, or they kept their heads and nearly destroyed all the horsemen by musketry. In this case, at the Battle of Omdurman, the two living walls crashed together with a mighty collision. […] Riderless horses galloped across the plain. Men, clinging to their saddles, lurched hopelessly about, covered in blood from perhaps a dozen wounds. In only 120 seconds, five officers, 66 men, and 119 horses had been killed or wounded."

– Frederick Woods, *Young Winston's Wars*

Lord Cardigan leads the Charge of the Light Brigade toward Russian artillery and cavalry. It was one of the biggest mistakes in British Military history



it was finally announced that rations were to be increased, they often reached troops too late, or were spoiled on arrival due to how long they took to be delivered. In many cases, the men were too exhausted and dehydrated to collect anything sent to them. By February, scurvy was visible in every regiment, and the soldiers' loose teeth in their fleshy gums meant that even when rations did arrive, they could not bear to eat them.

It was only when the news of the horrific living conditions reached the British press that anything was done about it. Florence Nightingale, a revered nurse who had been making a name for herself by improving conditions of hospitals in London, was sent to Crimea along with 38 volunteer nurses to help tend the wounded. She worked towards improvements in sanitation and nutrition, which resulted in a drastic fall in death rates. The news of the disastrous status of the war also put great pressure on British government, forcing a realisation that their once stable army was now in desperate need of modernisation to remain the dominant global power and restore peace.

Although it was the most significant, the Crimean War was by no means the only notable conflict during the imperial century. Just a year after its conclusion, the mid-century crisis continued in spectacular fashion as mutiny kicked off in India in 1857. Grumbles between the ruling East India Company and Indian soldiers working under their command (known as sepoys) escalated outrageously, kick-starting a bloody conflict between natives and occupying Company officials. The inadequacies of those in command did not help matters, nor did the fact that there were no British regiments anywhere close to North India to help settle matters and restore peace – they were all busy supporting the Afghan fight against the Persians. Local military forces were also manned by such huge numbers of local men that the Company became marooned amid a sea of dissent. The rebellion wasn't contained for another nine months, after a bloody campaign involving the execution of vast numbers of Indian rebels.

Towards the end of the century, the Second Boer War lasted from 1899-1902 and was still raging as Queen Victoria passed away in 1901. It was the most expensive and bloodiest war during the imperial century, costing Britain an estimated £200 million. A 'scorched earth' policy was used to help end the war, where towns, farms, crops and livestock were all burnt to cut off supplies to the enemy. A series of concentration camps were set up to house the women and children whose houses had been demolished – but, similar to the Crimean War, living conditions provided by the British were poor and led to a high number of civilian deaths.

In the closing years of the imperial century, Britain still held control over its colonies across the globe. In fact, upon the close of the Victorian era the Empire was soaring at its highest heights. But these were the waning years of Victoria's Empire of old, and a growing struggle for peace was emerging far closer to home. Other European countries such as France and Germany had been caught up in industrial developments and were creating more advanced weaponry and better trained armies. Meanwhile, whispers of a growing imperial navy in Germany under the rule of Queen Victoria's oldest grandson, Kaiser Wilhelm II, were spreading. It would become apparent that in the not-so-distant future one of two things would arise: a blockade powerful enough to stop a German uprising or warfare on an unprecedented scale. The catastrophic events of World War I would follow 13 years after Victoria's demise at the hands of a cerebral haemorrhage. So while relative peace in Britain might arguably have reigned supreme during her victorious 63 years on the throne, the wheels had already been set in motion towards the close of the 19th Century for a war that would profoundly influence the furthest reaches of the world.

> "Their once stable army was now in desperate need of modernisation"

The Boer War (1899-1902)

Between 1899 and 1902, soldiers from the British Empire and Dutch-speaking settlers fought in South Africa

Some **55,000** soldiers died during the war, with about **13,000** dying from disease and one being eaten by a crocodile.

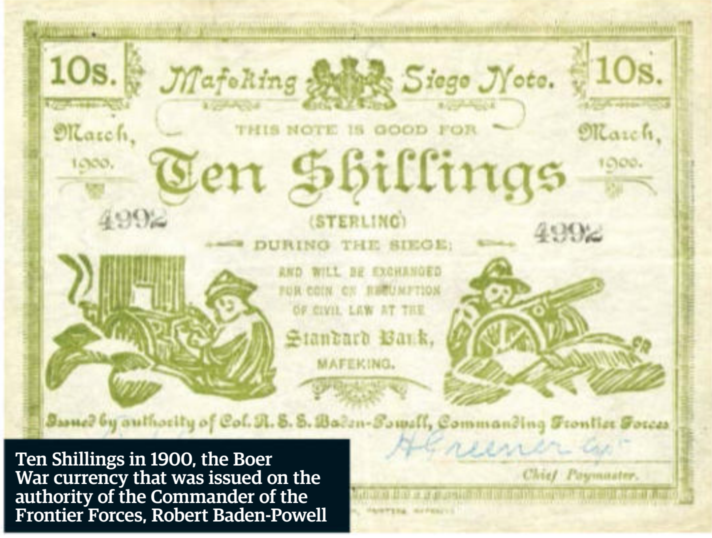
South African Republic General Piet Cronje's 94-pounder Creusot 'Long Tom' gun fires at British forces during the siege of Mafeking

Reports show **86** soldiers were either injured or killed by lightning.

British soldiers were armed with the new Lee-Metford magazine rifle, but lack of training meant they were unaware of how to effectively harness its speed or accuracy.

One of the British Generals was Colonel Baden-Powell, who after the war went on to found the Scout Movement.

18 February was dubbed 'Bloody Sunday' due to the high number of allied fatalities and casualties suffered in a single day - **1,100** were injured and **280** were killed.



10s. Mafeking Siege Note. 10s.

March, 1900.

THIS NOTE IS GOOD FOR

Ten Shillings

(STERLING)

DURING THE SIEGE;

AND WILL BE EXCHANGED FOR COIN ON RESUMPTION OF CIVIL LAW AT THE

Standard Bank, MAFEKING.

4992

Issued by authority of Col. R. S. S. Baden-Powell, Commanding Frontier Forces

H Greener Capt

Chief Paymaster.

Ten Shillings in 1900, the Boer War currency that was issued on the authority of the Commander of the Frontier Forces, Robert Baden-Powell

Lieutenant-General Robert Baden-Powell, centre, and his staff in 1900 after the siege of Mafeking during the Boer War

A tug of war between soldiers on Christmas Day 1899 at Chieveley camp during the Boer War

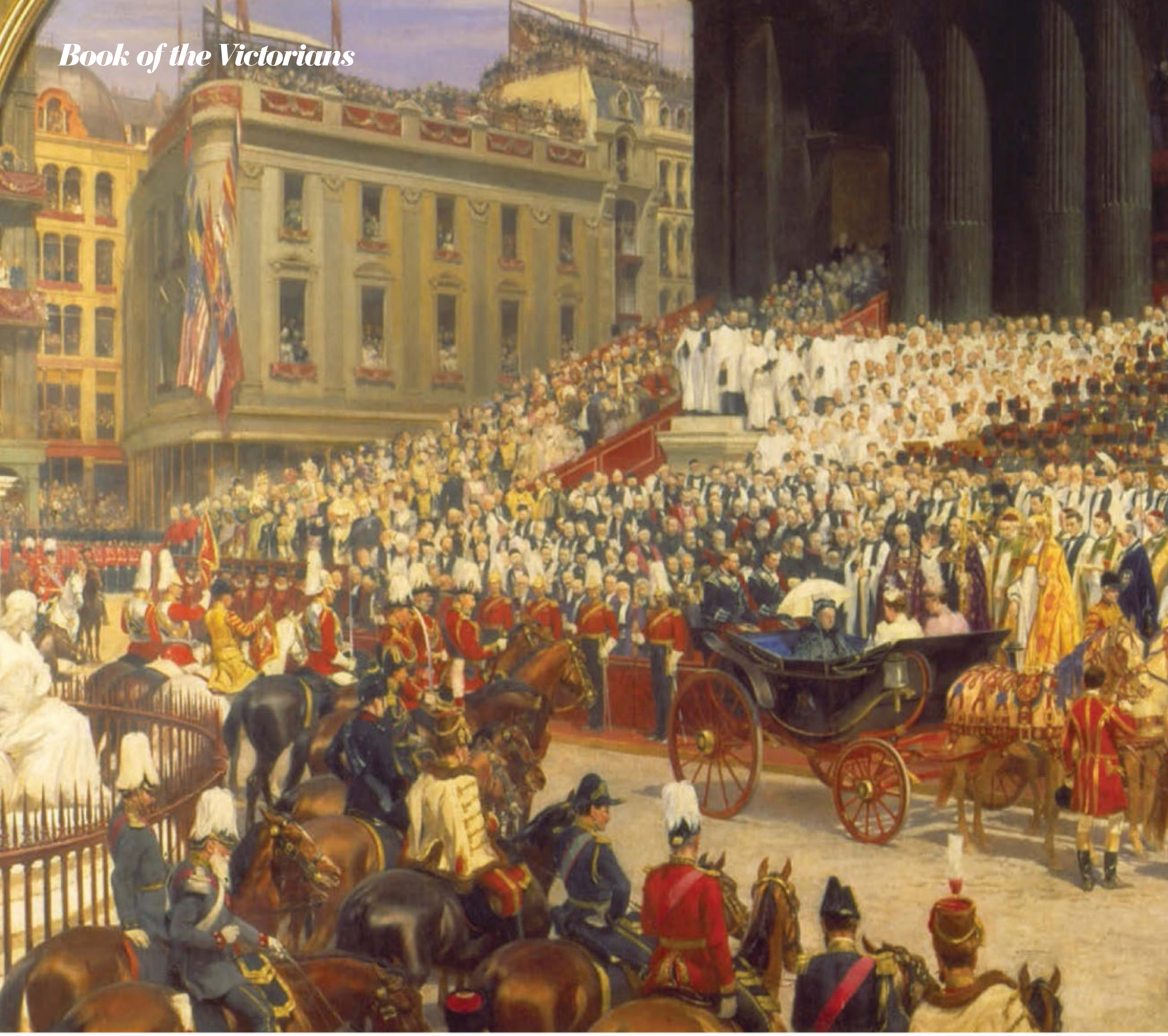
A group of British prisoners captured by the Boers. The prisoner on the right is Winston Churchill, who was working as a war correspondent for the *Morning Post*

LEGACY

Explore how Victoria's long reign shaped a nation, and how her lasting influence extended over the globe

150 End of an era
Learn about the lasting impact of Victoria's life on her people at home and around the world

150

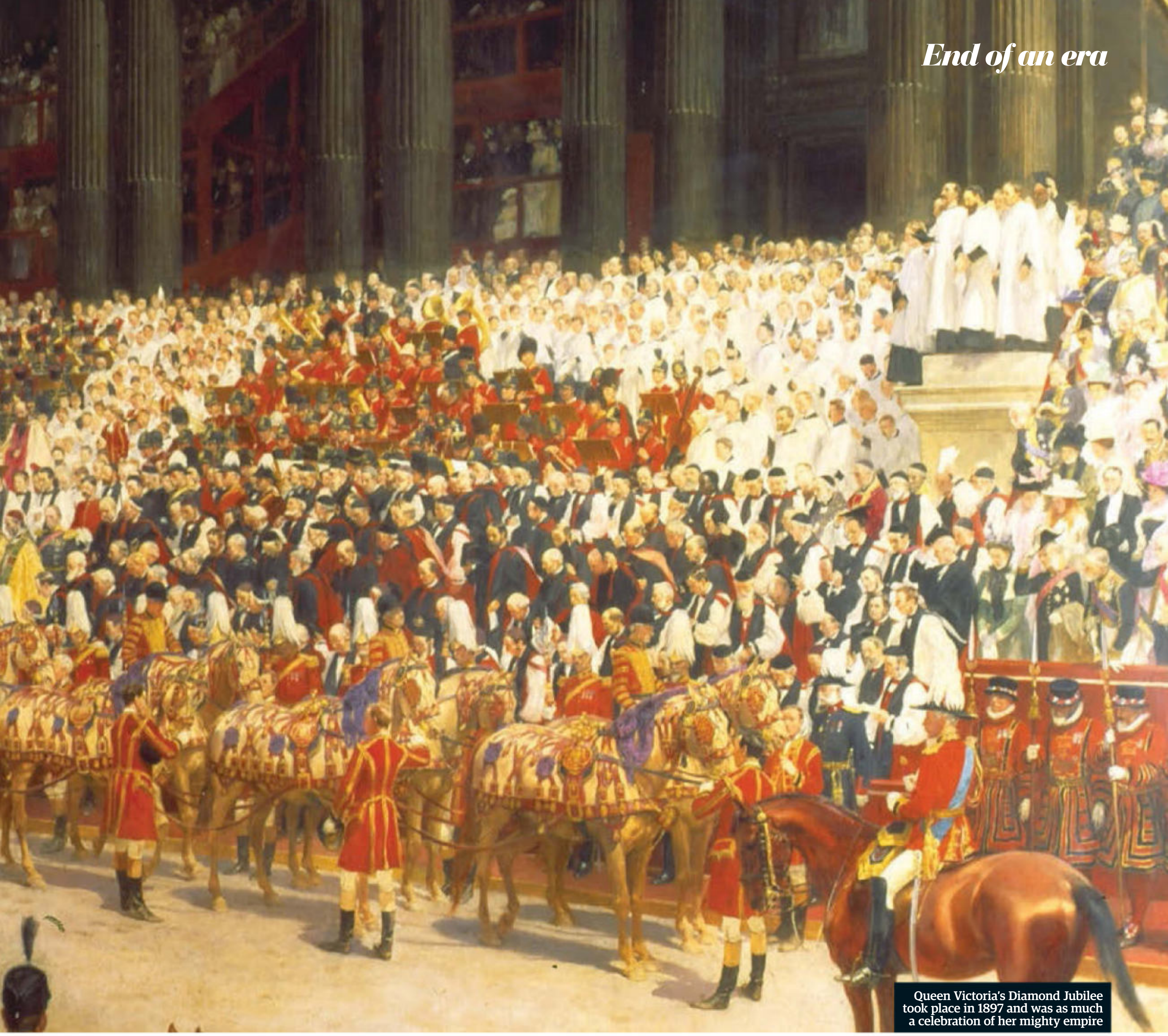


End of an era

After 63 years on the throne, Victoria's death left the nation pondering its own mortality. Having known no other leader, the nation's future felt uncertain…

A mass of black-clothed mourners waited to say their last goodbyes to the Queen who had served them devotedly for nearly 64 years – the longest of any British monarch. An eerie silence hung over them like a shroud as people bowed their heads in sorrow, some shaking with grief and others from the bitter cold. The only sound came from the clopping of horses' hooves and the muffled gun salutes fired in Hyde Park, as the gun carriage passed. At the sight of the Queen's coffin, it was as if a thousand mouths drew breath at once. Writer John Galsworthy described it as "a murmuring groan… So unconscious, so primitive, deep and wild… The Queen was dead, and the air of the greatest city upon Earth grey with unshed tears."

From inside the Queen's carriage, one of the two ladies-in-waiting, Edith, the Dowager Countess of



Queen Victoria's Diamond Jubilee took place in 1897 and was as much a celebration of her mighty empire

Lytton, felt incredibly moved by the sight of the mourners. "The most heart and soul stirring thing I have seen," she wrote in a letter to her daughter. "[The Diamond] Jubilee can't compare with it to my mind because what was uppermost all the time was not the splendour of the show, but the intensity of loyal and devoted feeling, which seemed to fill every man and woman in that enormous, monotonously black crowd."

The country hadn't witnessed a state funeral since the death of the Duke of Wellington in 1852, so court officials closely examined the details of royal protocol and rights of precedence while arranging the funeral procession. The Queen herself had left strict instructions, expressing that she wanted a 'white funeral', so London was draped with purple crepe – the colour of royalty – and white satin bows. Victoria wore a white dress and her wedding veil, despite wearing nothing but black for the 40 years she spent as the so-called Widow of Winchester. Numerous mementos were placed inside the coffin with her: Albert's dressing gown and a plaster cast of his hand, jewellery, photographs as well as a picture of her good friend and faithful servant John Brown, a lock of his hair and his mother's wedding ring – Victoria's physician Sir James Reid saw to it that these last few items were concealed from the family's view. It was to be a military funeral, with eight white horses and a white and gold satin pall over her coffin. The carriage drive through the capital came to an end at Paddington Station, in preparation for the final stage to Windsor. But it was at Windsor where the long journey to the Queen's final resting place faltered. While waiting for the funeral procession to begin once more, the artillery horses grew restless. They reared and kicked, proving unable to draw the gun carriage, so the naval guard of honour quickly made alternative arrangements. A communication cord was turned into an impromptu harness and the sailors on guard at the station pulled the Queen's funeral carriage instead. Ever since that day, it became a tradition for sailors to pull the coffin along the processional route in State funerals.

Victoria instructed Dr Reid to place a photo of John Brown as well as items belonging to Albert in her coffin to be buried with

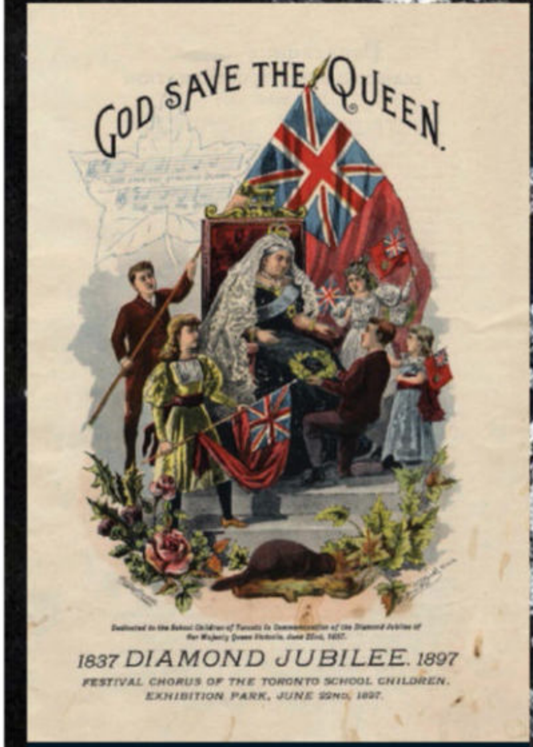
The service took place at St George's Chapel at Windsor Castle, in a private ceremony with the new King, Edward VII, the Queen's family and royalty from around the world. Victoria had 37 great-grandchildren, whose marriages with other monarchies earned her the name the 'grandmother of Europe'.

After lying in state for two days, the Queen was finally buried next to Albert at the Frogmore Mausoleum at Windsor Great Park. Throughout her long widowhood, she had always maintained her desire to be with him again. Shortly before he died, Albert reassured her: "We don't know in what state we shall meet again; but that we shall recognise each other and be together in eternity I am perfectly certain." And above the Mausoleum door was inscribed Victoria's words: "Farewell best beloved, here at last I shall rest with thee, with thee in Christ I shall rise again."

The Queen was 81 when she died, making her longest reigning monarch. Before her, that accolade had belonged to her grandfather, King George III. Ten years of mental illness had forced him to retire from public life, but Victoria was strong throughout - so was the public's loyalty. This was never more apparent than at her Diamond Jubilee, where subjects from all parts of the Empire

Queen Victoria was named 'grandmother of Europe' after her great-grandchildren married European monarchs

> "The sailors on guard at the station pulled the Queen's funeral carriage… Ever since that day, it became a tradition for sailors to pull the coffin… in State funerals"


GOD SAVE THE QUEEN.
1837 DIAMOND JUBILEE 1897
FESTIVAL CHORUS OF THE TORONTO SCHOOL CHILDREN.
EXHIBITION PARK, JUNE 22ND, 1897.

This poster advertised Diamond Jubilee celebrations taking place in Toronto, Canada

Timeline of Queen Victoria's life

A future Queen is born
Alexandrina Victoria is born at Kensington Palace to Edward Duke of Kent and Princess Victoria of Saxe-Saalfeld-Coburg. When her father dies the following January, she becomes heir to the throne.
24 May 1819

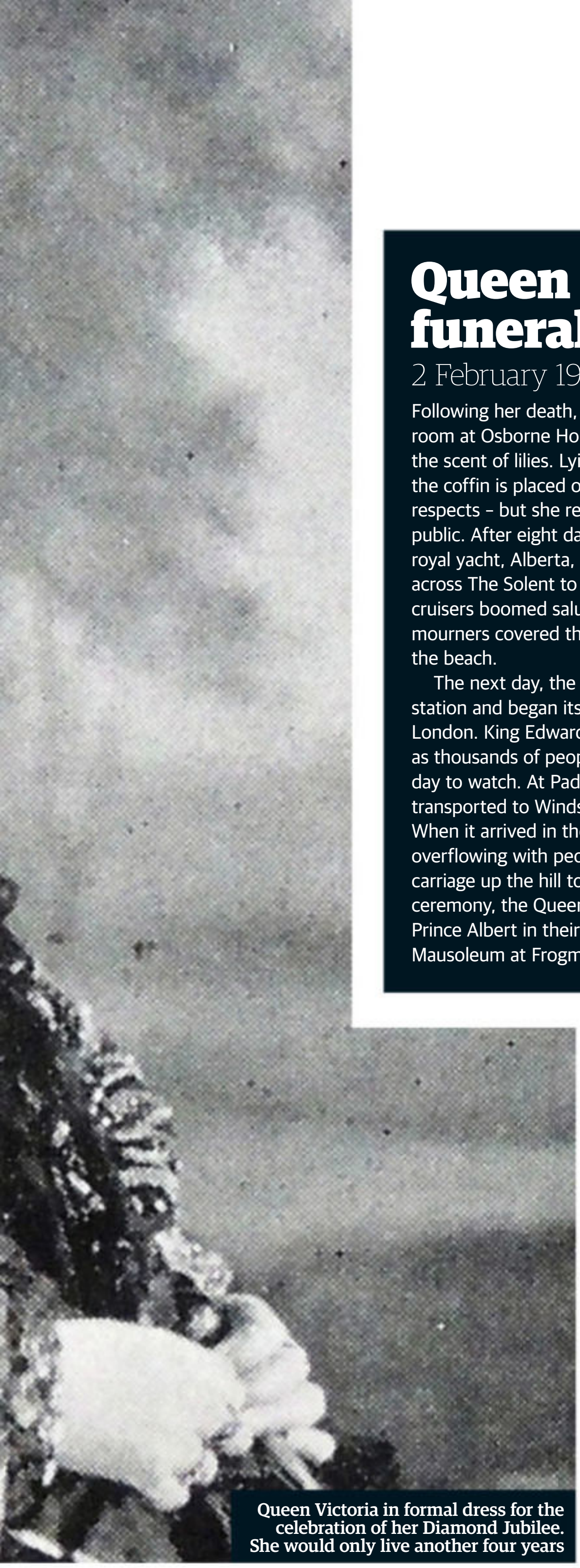
Coronation
A year after the death of King William IV, Princess Victoria becomes Queen. At just 19 years old, she was crowned at Westminster Abbey and 400,000 visitors travel to London to witness it. Shouts of "God save the Queen" ring through the air.
28 June 1838

The Big Day
When the Queen marries Prince Albert of Saxe-Coburg and Gotha, it marked the first wedding of a reigning Queen in England since Bloody Mary almost 300 years before. The ceremony is held at the Chapel Royal, St James's Palace.
10 February 1840

First child
The happily married couple welcome their first born child into the world, Victoria Adelaide Mary Louisa (known as Vicky). She would marry Prince Frederik William of Prussia and become Empress of Germany.
21 November 1840

The Great Exhibition
Prince Albert is the brains behind this event in the purpose-built Crystal Palace in London, celebrating the great advances of the British industrial age. The profits would go into establishing the South Kensington museums complex in London.
1851

Prince Consort
The Royal couple have their ninth child, Princess Beatrice, and this same year, Albert is formally recognised by the nation when he is awarded the title of the Prince Consort.
1857



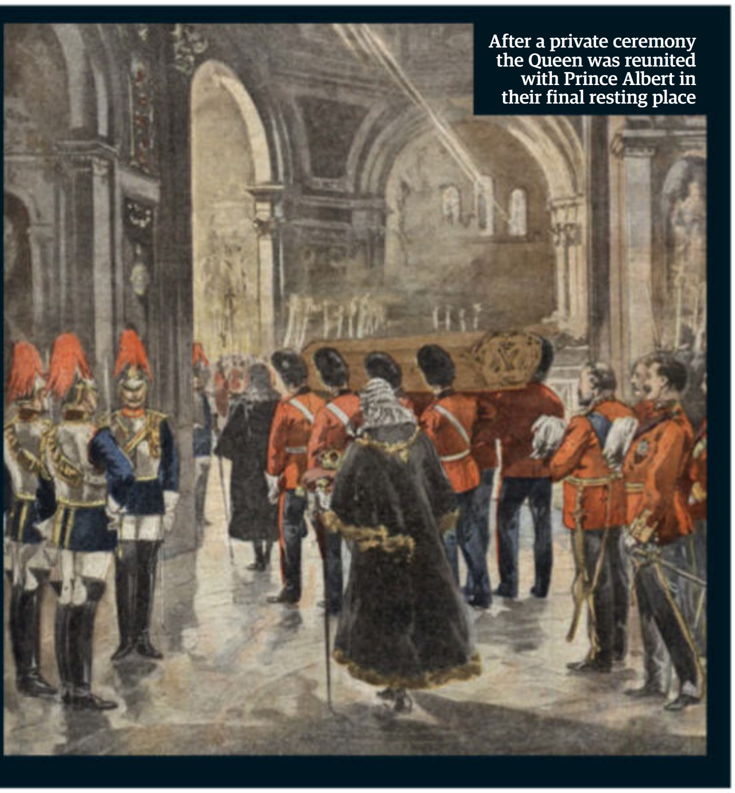
Queen Victoria in formal dress for the celebration of her Diamond Jubilee. She would only live another four years

Queen Victoria's funeral

2 February 1901

Following her death, the Queen lay in state in the dining room at Osborne House, where the air was heavy with the scent of lilies. Lying in state is a tradition where the coffin is placed on view so the public can pay their respects – but she requested that it would not be public. After eight days, her coffin was taken to the royal yacht, Alberta, on 1 February 1901. It journeyed across The Solent to Portsmouth, while battleships and cruisers boomed salutes on either side and crowds of mourners covered the Southsea Common and the beach.

The next day, the coffin was taken by train to Victoria station and began its procession by gun carriage across London. King Edward VII and the Kaiser led the way, as thousands of people braved the bitter winter's day to watch. At Paddington station, the coffin was transported to Windsor – the last leg of the journey. When it arrived in the afternoon, the town was overflowing with people. Here, sailors pulled the gun carriage up the hill to St George's Chapel. After a private ceremony, the Queen was reunited with her beloved Prince Albert in their final resting place: the Royal Mausoleum at Frogmore.



After a private ceremony the Queen was reunited with Prince Albert in their final resting place

assembled to celebrate, including 11 colonial prime ministers. There was a sense of imperial wonder as Victoria journeyed through London; she later wrote in her journal: "No one ever, I believe, has met with such an ovation as was given to me, passing through those six miles of streets… The cheering was quite deafening and every face seemed to be filled with real joy." Fast-forward four years and the news of the Queen's death had filled London with shock and sadness. When the government and her family got wind of her illness, the news was deliberately withheld from the public for over a week. It was a testament to how much of an impact she had had since her ascension to the throne, at a time when the Crown was tarnished by the public scandals of her predecessors. Victoria was the only child of Princess Victoria of Saxe-Coburg and Edward Duke of Kent and became queen at just 18 years old. Her uncle George IV and his brothers, the Duke of Clarence and the Duke of Kent (Victoria's father), were bigamists and fathered many children out of wedlock, causing public outrage. The Reform Act of 1932 had passed the powers of the monarch to Parliament, and there were even calls to abolish the royal institution completely, but Victoria won the people's loyalty against all odds.

In 1840, she married her cousin Albert Saxe-Coburg and over 17 years she had given birth to

> Prince Albert was her first cousin, they met on her 17th birthday and she proposed on their second meeting

- **Prince Albert dies**
  Aged just 42, Prince Albert dies of typhoid fever. In her journal, the Queen recalls the depths of her despair. When he is buried nine days later, she is too grief-stricken to attend the funeral. Victoria is lost in a period of mourning, which is expected to last 12 months, but continues for many more years.
  14 December 1861
- **First public appearance**
  The Queen abandons her public duties following the death of her husband. She doesn't appear publicly until 1863, when she unveils a statue of Albert in Aberdeen.
  13 October 1863
- **New friendships**
  The mid-1960s see Victoria gain a close friend in Scottish servant John Brown. He was rough, enjoyed a drink and treated the Queen surprisingly informally. He was even overheard calling her "woman"!
  1866
- **Empress of India**
  After catastrophic moves made by the East India Company spark mutiny, Britain seizes control of India. Prime Minister Disraeli swiftly secures the title Empress of India for his beloved queen.
  1877
- **The Golden Jubilee**
  The Queen celebrates 50 years with a quiet breakfast under the trees at Frogmore, the resting place of Prince Albert. She then travels to London for a royal banquet and on the following day, leads a procession through the city.
  1887
- **The Diamond Jubilee**
  The 60th anniversary is celebrated with a thanksgiving service outside St Paul's, as the Queen is too frail to climb the steps. Crowds of people flood the streets and Victoria wrote of the event in her journal: "I was much moved."
  1897
- **Victoria dies**
  The Queen dies at her estate, Osborne House, on the Isle of Wight. Victoria is 81 years old and has served as Queen for almost 64 years. She dies surrounded by her children and grandchildren.
  22 January 1901

four boys and five girls. Paintings and photographs of the devoted couple surrounded by their brood appealed to the family values of the growing middle class, while having legitimate children also assured the royal line, which her predecessors had failed to do. That's not to say everyone liked her and, in fact, there were seven assassination attempts during her reign. Popularity also took a downturn when Prince Albert died and, in her all-consuming grief, she was seen as neglecting her duties to her subjects. What was the point of a monarchy who had seemed to disappear before their eyes?

After almost a decade of isolation, Prime Minister Benjamin Disraeli urged Victoria to begin making public appearances again, and by the time of her Golden Jubilee in 1887, she had regained the respect and love of her country and overseas. In 1857, the government of India was transferred to the United Kingdom following the Indian Rebellion and in 1877 Victoria was given the title Empress of India. Celebrations were held in Delhi, led by Viceroy of India Lord Lytton, who presented the Indian princes with their own coats of arms and read a telegraph that had come from Victoria. The festivities marked Britain's imperial status as a global force to be reckoned with.

Her long reign saw Britain became an empire on which the sun never set. Queen Victoria was seen as having played an active role and towns, rivers and cities were named after her; such was the sense of national pride in their matriarchal figurehead. When she died, the great Victorian age died with her, as *The Times* wrote: "to write the life of Queen Victoria is to relate the history of Great Britain during a period of great events… An unexampled national prosperity."

> Victoria's popularity took a blow after Prince Albert's death, as she began to neglect her duties. But by 1887 she was back

It wasn't just her home nation that was left numb from the shock of her death. In Bahrain, India, the Victoria Memorial Hospital was opened, largely financed by the British Indian merchants who wanted to show their appreciation for the free trade and peace they enjoyed under British protection during her reign. In Canada, the people went into mourning. *The Mail And Empire* newspaper in Toronto wrote: "The private and personal concern was more touching than any public or ceremonial expression of grief. It showed, as no ceremony could, how near the Queen was to the hearts of her people, and how the thought of her had become part of the routine of life." Flags hung at half-mast and shop front windows were draped in black.

The Queen was called the Mother of Confederation after Canada became a unified state on 1 July 1867. "I believe it will make [the provinces] great and prosperous", she told Sir Charles Tupper, one of the principal fathers of Confederation. Main roads in Canadian communities were named after her, while the Queen's Birthday became a national holiday. Becoming known as Victoria Day in 1901, it is still celebrated today in memory of the great Queen. John Diefenbaker, the 13th prime minister of Canada, recalled the day of her death in his memoirs: "When Queen Victoria died, Father regarded it as one of the most calamitous events of all time. Would the world ever be the same? I can see him now. When he came home to tell us the news, he broke down and cried."

On the other side of the world, Australia wept too. Like Britain, Australia had experienced population growth and an increase in wealth during her time, so Victoria was well-loved. On 9 July 1900, she had declared the Commonwealth of Australia to come into being on 1 January

GOD SAVE THE QUEEN

Diamond Jubilee parade for Queen Victoria in 1897

Britain's longest reigns

Queen Victoria of the UK
Dates of reign:
20 June 1837 – 22 January 1901
Total years:
63 years, 216 days

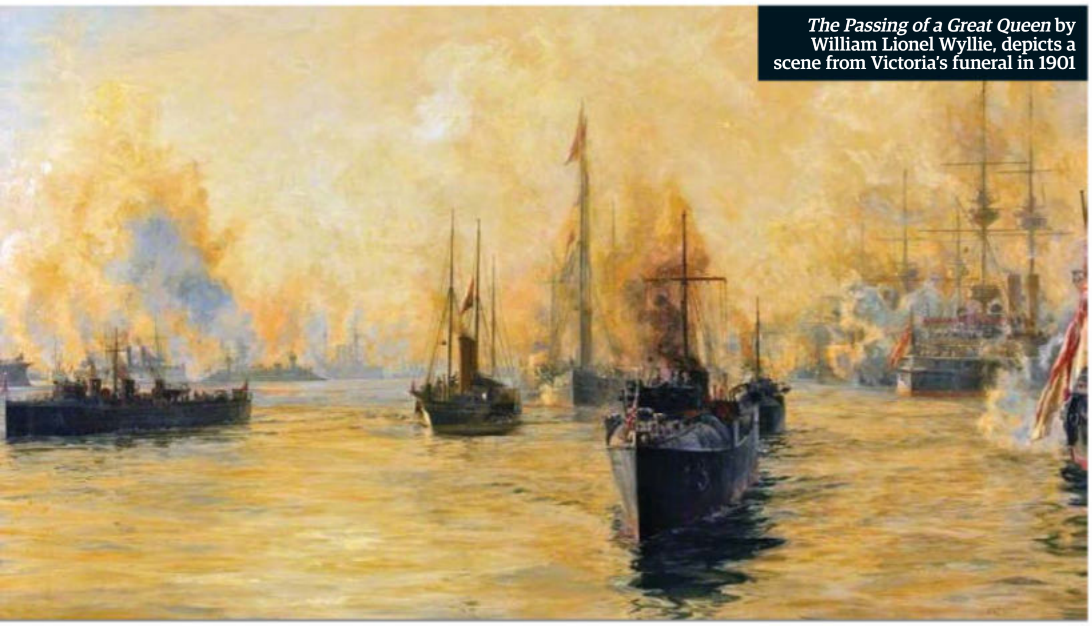
Queen Elizabeth II of the UK
Dates of reign:
6 February 1952 - present
Total years:
63 years, 176 days (correct at time of going to print)

King George III of the UK
Dates of reign:
25 October 1760 – 29 January 1820
Total years:
59 years, 96 days

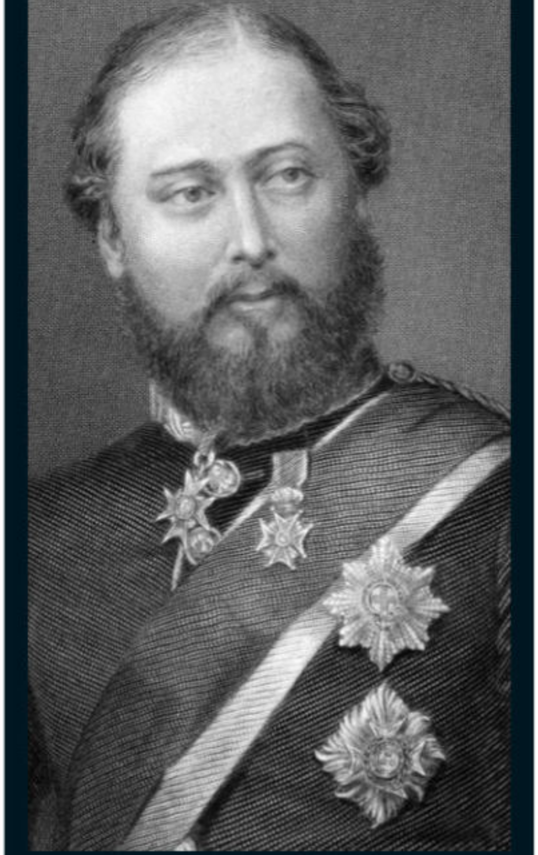
King James I of England (VI of Scotland)
Dates of reign:
24 July 1567 – 27 March 1625
Total years:
57 years, 246 days

King Henry III of England
Dates of reign:
18 October 1216 - 16 November 1272
Total years:
56 years, 29 days

King Edward III of England
Dates of reign:
5 January 1327 – 21 June 1377
Total years:
50 years, 147 days



The Passing of a Great Queen by William Lionel Wyllie, depicts a scene from Victoria's funeral in 1901



Edward VII

The playboy Prince of Wales

The eldest son of Queen Victoria and Prince Albert was known to his family as Bertie. He was also known as a disappointment. His poor performance during home tutoring and interest in eating, drinking and women earned him a reputation as a playboy prince. Victoria even remarked: "Handsome I cannot think him, with that painfully small and narrow head, those immense features and total want of chin."

Their relationship became even more fraught when Albert visited his son at Cambridge and went for a walk in the rain. He returned sick, bed-bound and dead within three weeks. It was probably due to typhoid, but Edward's mother forever blamed him for her beloved's death. "I never can or shall look at him without a shudder," she wrote. Consequently, when he became the King, he had never received an ounce of wisdom or preparation for the job from his dear mother.

Despite playing a role in the lead-up to World War I – by expanding the Royal Navy to compete with Germany – the Edwardian period is seen as an age of peace and prosperity, especially for the upper class.

"Handsome I cannot think him, with that painfully small and narrow head"

1901, unifying the Australian colonies. She died shortly after the celebrations, at the height of her popularity. "Millions who have never seen the face of the dead Queen honour and revere her memory throughout the length and breadth of the entire civilised world," read the next day's announcement in the *Herald*, an Australian newspaper. "In all stages of her history the imaginations were captured. Whether as Virgin Queen, or happy wife and mother or afflicted widow, Queen Victoria has appealed to us all as a great Queen and a noble woman." In Australia, the names given to two colonies during the 19th Century - Victoria and Queensland - were retained even after they achieved statehood, but the link between Australia and Britain was beginning to weaken.

For many, Victoria's death would become symbolic of the British Empire's decline, and for more than 50 years after her demise, people from all across the Empire would celebrate being a part of it. This occasion was known as Empire Day and - according to New Zealand newspaper *Oamaru Mail* on the eve of their first celebration - it served "the dual purpose of keeping fresh and green the memory of a most illustrious reign and rejoicing in the consolidation of our great Empire." School children would sing songs like *Jerusalem* and *God Save The Queen*, listen to stories about brave warriors and pioneers from across the Empire and then leave school early to join marches, maypole dances and parties. One New Zealand school journal from 1922 contained a poem that summed up the event nicely: "Our Union Jack, on Empire Day, floats proudly in the breeze; not here alone, but far away, in lands across the seas. Wherever British children dwell, or British folk may be, on Empire Day our flag shall tell that we are Britons free..." In Australia, the festivities were more commonly known by the name Cracker Night, which was celebrated with bonfires and fireworks.

Queen Victoria's death wasn't just mourned in Britain, but it affected people all over the Commonwealth

"For many, Victoria's death symbolised the decline of the Empire, but... People from all across the Empire would celebrate being part of it"

Egypt (1922)

At the end of the war, a political party devoted to Egyptian independence had formed, but the British didn't allow it. In retaliation, some provinces attacked British soldiers and destroyed infrastructure and communications. Order was restored, but it was thought that an alliance with an independent Egypt would be a better path. However, Britain and France still controlled the Suez Canal. It wasn't until the USA and other nations criticised them that Britain and France withdrew completely.

Jamaica (1962)

Between 1958 and 1962, most of the British-controlled Caribbean islands came together to form the West Indies Federation - a political unit that would become independent - in a similar vein to the Canadian Confederation and the Central African Federation. However, this folded when Jamaica withdrew and declared itself independent in 1962, followed by Trinidad and Tobago in 1962, and others followed.

Disbanding of the Empire

World War II went on to leave Britain in a moral and financial quandary that would lead to many states declaring independence

Crowds gather to celebrate the 1908 Empire Day in Brisbane, Australia

India (1947)

The spirit of nationalism in India was gathering momentum in the mid-19th Century. Bolstered by the formation of the National Congress in 1885 and leaders like Mahatma Gandhi, who started several movements against the British throughout the Twenties and Thirties. By World War Two, the Indian National Congress cooperated with the British in the hope that they would leave India afterwards. It was only when Mahatma Gandhi launched the Quit India Movement in 1942 that the British knew it was time to go.

Africa (1910 onwards)

The first part of Africa to become a self-ruling Dominion was South Africa in 1910, but it took other areas longer to follow. Most became independent post-World War II, after contributing thousands of men to fight in Europe and the Far East. Many of those men decided that they wanted their freedom, and after Britain went to war for the same reason, it became difficult for them to keep their hold on Africa. This, coupled with the cost of keeping an empire, led to their independence.

However, as the Empire began to weaken in the Fifties and countries started to revel in their own identity, this anniversary fell out of favour. It was later re-branded as Commonwealth Day, and the date was changed from 24 May to the second Monday in March. Queen Elizabeth II still sends a special message to the countries of the Commonwealth via radio broadcast on this date. In a recent address, she warned that "when common goals fall apart, so does the exchange of ideas. And if people no longer trust or understand each other, the talking will soon stop too," she continued. "Not only are there tremendous rewards for this cooperation, but through dialogue we protect ourselves against the dangers that can so easily arise from a failure to talk or to see the other person's point of view." There was certainly a lack of dialogue and understanding between England and Germany when the frosty relationship between the two rulers led to an intense rivalry that would steer them towards the Great War in 1914.

With the exception of Queen Victoria, the British royal family had an uneasy relationship with their German cousin, Kaiser Wilhelm II, the Queen's eldest grandson. Cowes sailing week, for instance, became the Kaiser's personal arms race with his Uncle Bertie, and each year he would arrive in a bigger yacht, flanked by German warships that fired their guns in a stunt that was probably designed to wow onlookers, but ended up scaring them instead.

The Kaiser had an unpredictable relationship with his family, but on hearing his grandmother was dying he ran to her side

The Kaiser had a love-hate relationship with his British relatives, but when he got wind that his grandmother was dying, he came at once. It was the Queen's personal physician Sir James Reid that sent a telegram to Wilhelm in secret, knowing the rest of the family would loathe being around him. Despite his troublesome reputation, Reid managed to persuade the Prince to permit Wilhelm to visit the Queen alone, and perhaps it was this honour that made him act differently – with grace and humility. He cradled his grandmother the hour before she died and followed her funeral procession on a white horse, dressed in a long grey cloak. He loved to show off, as one Berlin society lady remarked: "The trouble with the Kaiser is that he wants to be the bride at every wedding and the corpse at every funeral." But the real damage to Anglo-German relations came with the expansion of the Imperial German Navy to challenge the Royal Navy, which had dominated the world's oceans for over a century. With a large navy, Wilhelm believed that Germany would be taken seriously as a world power and the fleet would serve as a deterrent to prevent Britain entering into a war against Germany.

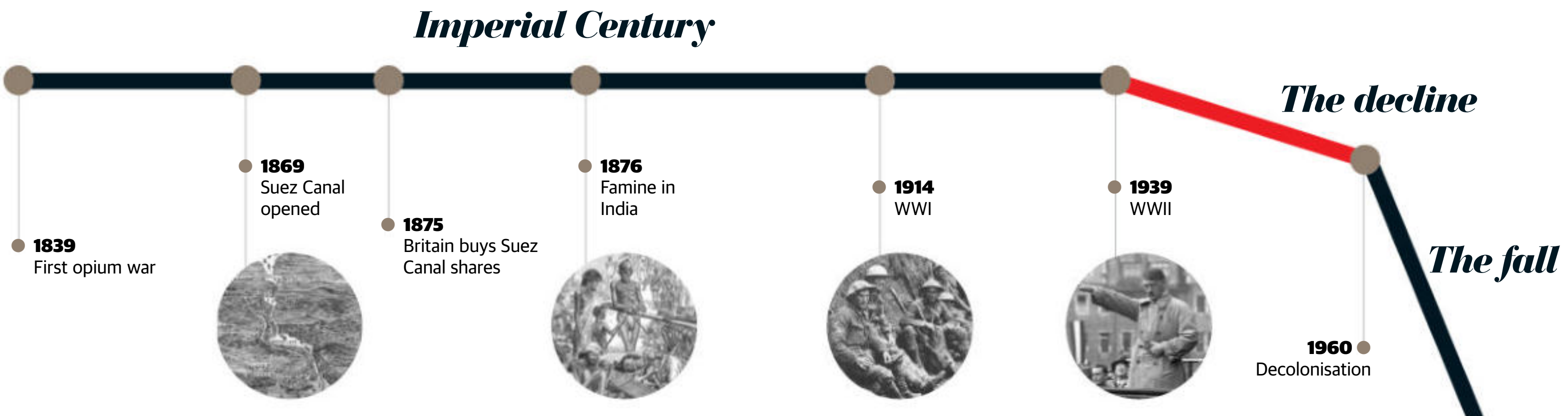
He instated Admiral Alfred von Tirpitz as Secretary of State for the Imperial Navy Office, as Tipitz's ambitions for a battle fleet were in line with his own. British Prime Minister Winston Churchill said of the naval arms race: "I deeply deplore the situation, for I have never had any but friendly feelings toward that great nation and her illustrious sovereign and I regard the antagonism which has developed as insensate. Anything in my power to terminate it I would gladly do." Suspicious of German's end goal, Britain set about building massive dreadnought battleships in order to compete for naval superiority. It also compelled them to find new allies and form new relationships from around the world.

Wilhelm did not get along with his Uncle Bertie, Edward VII, believing that he treated him as merely a nephew rather than the Emperor of Germany. Edward, on the other hand, had harboured a hatred for Germany since Wilhelm II's father (also called Wilhelm) invaded Denmark and carved a piece of it off in the name of German unification in 1864. Edward was married to the Danish-born Alexandra (whose twin was Tsar Nicholas' mother), so he was very outspokenly anti-German as a result, and gathered around him like-minded political hopefuls. One of the few he gathered was Sir Edward Grey, who became Foreign Secretary in 1905 and ultimately made decisions that led Britain into war by standing by its vaguely worded treaty with France.

> The expansion of the Imperial German Navy to challenge the Royal Navy damaged the Anglo-German relations

This treaty, the Triple Entente, united three old enemies - Britain, France and Russia - in their

Kaiser Wilhelm II strides his way through Queen Victoria's funeral on his white horse



1839
First opium war

1869
Suez Canal opened

1875
Britain buys Suez Canal shares

1876
Famine in India

1914
WWI

1939
WWII

1960
Decolonisation

1997
Return of Hong Kong to China

The decline of the Empire

Statues memorialising Victoria's reign include this one in Toronto, Canada

Kaiser Wilhelm

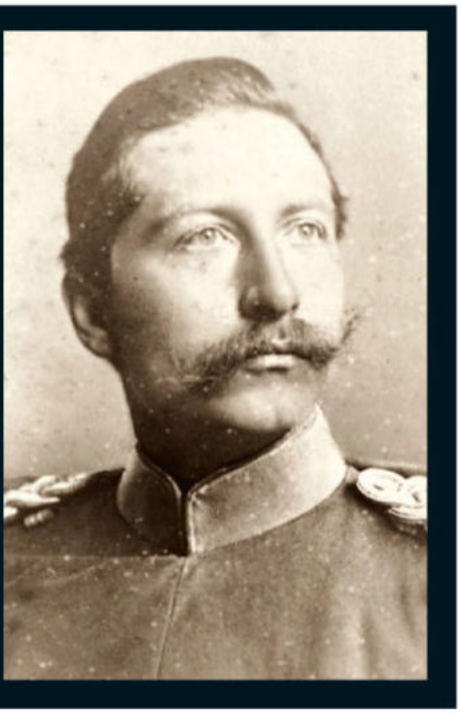
A man at war with himself

The son of Queen Victoria's eldest daughter Vicky, Kaiser Wilhelm II was meant to be the heir that would strengthen the bonds between Britain and Germany. Instead, he ended up forging such a love-hate relationship with the nation, that he would declare war.

A difficult birth had left him with a paralysed left arm and stunted growth that Princess Vicky was determined to cure. From having his arm inserted to freshly slaughtered hare to daily electrotherapy treatments, the Kaiser was forced to endure a tormented childhood. By the age of 16, he had developed a twisted love for his mother. Uncovered letters revealed fantasies about kissing her hand in an erotic fashion, which some historians believe was his desperate plea for acceptance. Her response talked about politics and music – anything but his fantasies – and he didn't reply. Their relationship was over and the Kaiser developed a hatred of his English roots.

When he started expanding the German navy, Britain started to worry. He gave an interview to *The Daily Telegraph* as an olive branch, but only made things worse when he let slip: "You English are mad, mad, mad as March hares."

Following World War One, Kaiser Wilhelm was forced to abdicate on 9 November 1918, fleeing the country with his family to live out his days in Holland.



The Victoria Memorial at the head of the Mall was unveiled in 1911

concern over Germany's plans to dominate Europe, and although it didn't demand they go to war on each other's behalf, it meant that they had a moral obligation to support each other should the worst happen. This was the end of Britain's foreign policy of 'splendid isolation' by means of avoiding alliances with other countries.

Under Victoria's reign, Britain was the most powerful country in the world. She possessed India – "the jewel in the crown" – South Africa, Canada, Australia, Malaya (now Malaysia), Nigeria, Egypt and Rhodesia. It amounted to a staggering one-sixth of the Earth's land surface, but the Anglo-Boer War had revealed a chink in Britain's seemingly impenetrable armour. Without an ally, she was weak.

When Edward VII died in 1910, his funeral was a parade of royalty from all over Europe and was the last of its kind. The nine reigning European Kings assembled at Buckingham Palace looking unified in their military regalia and extravagant facial hair. It would have seemed to anyone that blood was thicker than bombs, but that illusion was soon shattered. By 1914, three crowned cousins were at war, with King George V of Great Britain and Tsar Nicholas II of Russia on one side, and the German Kaiser on the other in a conflict that would leave only four of the nine Kings still on their thrones.

While the Kaiser signed the papers sanctioning mobilisation of the German armed forces, he lamented: "To think George and Nicky (the Tsar) should have played me for false! If my grandmother had been alive, she would never have allowed it."

> At the height of her power, Queen Victoria's reign amounted to a huge one-sixth if the earth's land surface

The streets filled for Edward VII's coronation procession

Edward VII and wife Alexandra pictured in ceremonial robes on his coronation day

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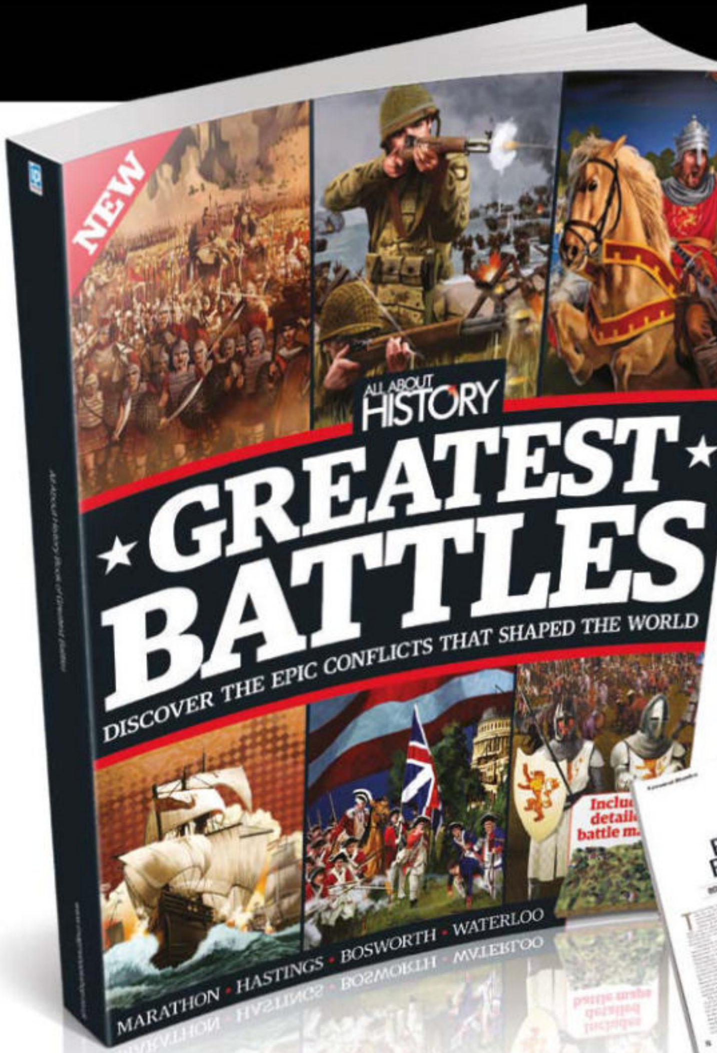
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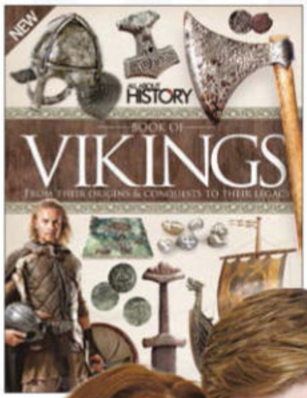
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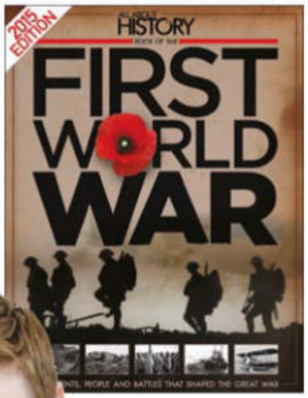
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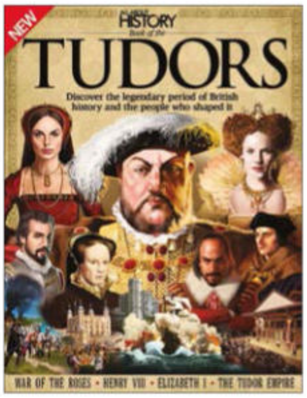
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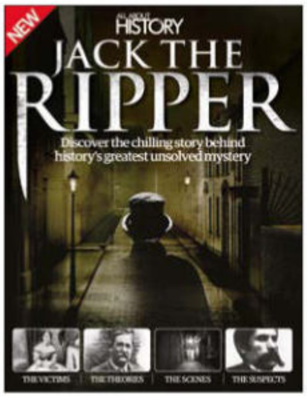
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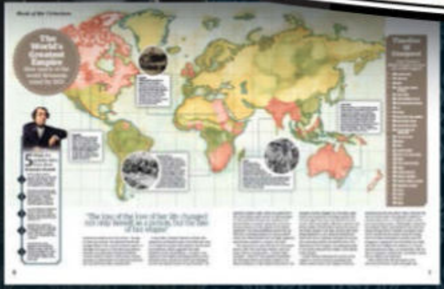

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